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Spiritual Well-Being and Death Anxiety in Chronic Diseases: A Meta-Analysis Study

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Abstract. *Death anxiety is the most common psychiatric consequence experienced by people with chronic diseases. A potentially important factor in reducing death anxiety is spiritual well-being. There are many studies linking spiritual well-being and death anxiety, but some results show differences. This study aims to summarize various research results related to the relationship between spiritual well-being and death anxiety in patients with chronic disease to obtain a combined effect size. The research design uses meta-analysis to get a summary of the effect size from research on the relationship between spiritual well-being and death anxiety in people with chronic diseases. Sources of information were collected through Publication in Sage Journal, PubMed, ProQuest, Springer LINK, Science Direct, and Google Scholar. Inclusive criteria were the articles from 2011 until 2021, the publication is done in English, the participants are at least 18 years old, report sufficient statistical data for quantitative synthesis, and the existence of measuring instrument information from the two variables. The findings show that a total of eight studies and nine effect sizes met the inclusive criteria. The protocol for reporting the results of meta-analyses is PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The results of the analysis show that the relationship between spiritual well-being and death anxiety is -0.26; 95% CI; with a range of -0.40 to -0.11. The quality of all evidence was evaluated using GRADE (Grading of Recommendations Assessment, Development, and Evaluation), the results were in the moderate category. This meta-analysis found a negative relationship between spiritual well-being and death anxiety in people with chronic diseases with a low effect size. The conclusion of the study shows that spiritual well-being can be a variable for reducing death anxiety in people with chronic disease. The research implications show that there is an urgency for health professionals in managing patients with chronic diseases to pay more attention to their spiritual well-being*

Keywords: *chronic disease; death anxiety; spiritual well-being*

INTRODUCTION

Chronic disease or communicable disease is a disease that affects many people and becomes a financial burden on global health (WHO, 2021a). Chronic disease are collectively responsible for nearly 71% of all deaths worldwide, or the equivalent of 41 million people. Every year, more than 15 million people die from chronic diseases between the ages of 30 and 69 years and 85% of these deaths occur in low- and middle-income countries (WHO, 2021b). According to World Health Organization (WHO) data (2020) shows that in Indonesia in 2020 has a death rate from chronic

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diseases totalling 1,365,000 people. The three highest causes of death are heart disease, stroke, and hypertension (WHO, 2020). Research conducted by the Health Research and Development Agency shows that the development of chronic diseases in Indonesia is currently worrying. Increasing trends in chronic disease are followed by shifts in disease patterns. In general, this type of disease is usually experienced by the elderly group. However, it is now starting to threaten the productive age group. The Ministry of Health of the Republic of Indonesia stated that chronic diseases increased during the pandemic and absorbed the largest costs in national health Insurance (Kemenkes RI, 2020).

Chronic diseases generally require medical treatment with long duration and progression, so the disease has the potential to worsen the patient's overall health, limit individual capacity for activities, limit productivity, and can affect the quality of life (Kristofferzon et al., 2018; Megari, 2013). Life-threatening situations related to health conditions can have various psychological consequences (McCaffrey et al., 2016; Yaghoobzadeh et al., 2017). The most common psychological reaction shown by people with chronic diseases is anxiety. One of the main types of anxiety and the most common psychiatric consequence of chronic disease; is death anxiety (Moeini et al., 2012; Soleimani et al., 2017).

Death anxiety can also evoke fears of helplessness, and meaninglessness and for some, death anxiety can limit the fulfillment of happiness (MacLeod et al., 2017). Managing death anxiety needs to be done to improve mental health and quality of life for people with chronic diseases (Zhang et al., 2019). An important multidimensional factor in the phenomenon of death anxiety is spiritual well-being. Spiritual well-being is an indication of the quality of life in the spiritual dimension or an indication of spiritual health (Tumanggor, 2019).

Death Management needs to be done to improve mental health and quality of life for people with chronic diseases (Zhang et al., 2019). The most important multidimension factor in the phenomenon of death emergencies is spiritual well-being. Spiritual well-being is an indication of the quality of life in a spiritual dimension or an indication of spiritual health (Tumanggor, 2019). Spiritual well-being is an important factor that can affect various aspects of life-related to the health of people with chronic disease, because spiritual well-being can improve the quality of life by reducing the level of sadness, anger, and anxiety, as well as increasing the sense of hope, making people more optimistic and free from regrets (Al-Natour et al., 2017). Spiritual well-being plays a fundamental role in how individuals face the concept of death by influencing their understanding of the condition they face (Soleimani et al., 2016; Yaghoobzadeh et al., 2017).

A number of studies have discussed the results of the correlation of spiritual well-being and death anxiety in people with chronic diseases. However, some studies do not reach the same conclusion. Research shows that spiritual well-being have negative correlation with death anxiety in people with chronic diseases (Aderyani et al., 2021; Mansori et al., 2017; Shirkavand et al., 2018). Meanwhile, research by Soleimani et al., (2018) found that it does not significant correlation between spiritual well-being and death anxiety in people with chronic diseases. Furthermore, Taghipour et al., (2017) also found a positive correlation between spiritual well-being and death anxiety in people with chronic diseases.

The absence of systematic analyses, the variability of the populations with chronic diseases, and various findings across studies may hinder scientists and medical professionals from interpreting and translating collective results. Based on this, this study proposes a meta-analysis method as a research approach that aims to summarize various findings related to the same phenomenon, namely the correlation between spiritual well-being and death anxiety in people with chronic diseases, in order to obtain the results of the combined effect size and meaningful conclusions. In particular, it will explain the factors related to how spiritual well-being and death anxiety are related. The results

of this analysis are needed to inform future research directions and help the survival of people with chronic diseases as intervention targets.

So far, no previous research has been found using meta analysis to systematically test the relationship between the two variables among the chronic disease population. Based on this description, the researcher wanted to examine the relationship between spiritual well-being and death anxiety in people with chronic diseases using the meta-analysis method. The formulation of the problem in this study is "What is the estimated average effect size of the relationship between spiritual well-being and death anxiety in people with chronic diseases?". The study aims to determine the estimated average effect size of the relationship between spiritual well-being and death anxiety in people with chronic disease. This research is expected to develop insight and knowledge in psychology related to the relationship between spiritual well-being and death anxiety in people with chronic diseases. Practically, the results of this study are expected to give consideration to medical professionals and caregivers to provide appropriate care, so that people with chronic diseases can develop spiritual well-being to reduce death anxiety.

METHOD

This study uses a meta-analysis research design in analyzing the results of previous studies to obtain an estimate of the average effect size. The effect size in this study uses the effect size coefficient of correlation, because it relates to the alleged strength of the relationship (association) between the two measures. This study uses guidelines from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 (Page et al., 2021) to plan, conduct the research process, and report the results of the meta-analysis.

The object of study in this meta-analysis is studies that examine the relationship between spiritual well-being and death anxiety in people with chronic diseases. Researchers try to collect research literature that has similarities in terms of population and expected research results. The initial keywords are arranged based on the dependent variabel, independent variable and the research subject. The keywords for the spiritual well-being variable were “spiritual well-being” OR “spiritual wellbeing” OR “spiritual health” OR “spirituality”. The keywords for death anxiety were “death anxiety” OR “fear of death” OR “fear of dying”. The keywords for chronic disease were “chronic disease” OR “chronic illness” OR “non-communicable disease”. Keywords are combined with filter facilities when the site or search engine used provides.

Search and Election of data is done through several databases, including Sage Journal, PubMed, ProQuest, Springer LINK, Science Direct, and Google Scholar. In addition to the database, data collection was carried out through library research on previous research reviews (Soleimani et al., 2020). Research articles are limited between January 2011 to August 2021. Literature that has passed the first screening will be screened based on the specified inclusion and exclusion criteria. To be eligible for the analysis, the inclusion criteria that must be met are as follows: (1) research subjects are people with chronic diseases (a health condition that requires medical treatment and lasts at least 1 year that limits daily activities, such as heart disease, cancer, chronic respiratory disease, diabetes dan stroke); (2) at least 18 years old; (3) publication is in English; (4) there is an adequate statistical data report for quantitative syntheses, such as the results of correlation (r) and significance level (p); and (5) there is information on the measuring instrumental from the variables of spiritual well-being and death anxiety. Exclusion criteria from the research data include; (1) only one of the variables appeared, whether only spiritual well-being or only death anxiety; (2) not (besides) chronic disease; (3) publications in languages other than English; (4) qualitative research.

The framework for exploring variability in research is that researchers collect a variety of studies that have similarities in terms of 1) quantitative-correlation research design; 2) study population in patients with chronic diseases; 3) has the expected result.

After finding the right articles to be subjected to meta-analysis, the next step is to test the risk of bias assessment. The instrument used in the risk assessment of bias is the Newcastle-Ottawa scale (NOS) checklist. The Newcastle-Ottawa Scale (NOS) is a risk assessment tool for bias for observational studies recommended by the Cochrane Collaboration (Higgins & Thomas, 2021). The data analysis for the meta-analysis was carried out with software Revman 5.4 application. The value required for data analysis using Revman is the correlation effect size value and the Standard Error (SE) value. Standard Error (SE) values can be replaced using CI values from each study. The pooling model used is a random effect model, which is consistent with Borenstein et al., (2009) that (1) the pooled research literature is an independent study, so it is not possible that all research is functionally equivalent, and (2) the population of each research literature is different. The results of data analysis will appear in the forest plot. The effect size interpretation refers to Cohen's (1992), which is the negative effect size is categorized as small if the correlation value is -0.1 to -0.3, the moderate effect size is -0.3 to -0.5 and the large effect size is -0.5 to -1.0.

We evaluated the heterogeneity between studies with the index I2 which evaluates the proportion of the total variance that is attributable to the heterogeneity. The results of the calculation of the heterogeneity score (I2) refer to Higgins' intepretation category (2003), if heterogeneity between 25% and 50% is diagnosed with low heterogeneity, 50% to 75% is diagnosed with moderate heterogeneity and >75% is diagnosed with high heterogeneity. We evaluated the publication bias by analyzing a visual evaluation test of the funnel plot. Evaluation of the quality of meta-analysis using GRADE (Grading of Recommendations Assessment Development and Evaluation) criteria. The GRADE quality test results in a final evaluation of all evidence of quality in one of four categories, namely high, medium, low, and very low.

RESULTS AND DISCUSSION

The identification and selection of the study object were carried out from Two sources, namely a search from the database and a citation search or bibliography. Process-based on flow according to PRISMA (Page et al., 2021). The data search was carried out from September 22 to October 1, 2021. There were 3,341 articles recorded from six databases, including Sage Journal (305), Google Scholar (1,185), PubMed (536), ProQuest (794), Springer Link (279), and ScienceDirect (242).

A total of 2,858 works of literature were left after duplicates were eliminated. The initial screening process dropped 2,848 works of literature leaving 10 studies for the next stage. The ten studies accessed in their full text, so that the eligibility assessment is carried out. The articles was rejected from a full text review bacause of the statistical data do not match (1 study rejected because r value is not available) and do not use English (2 study are rejected). There are seven studies that meet the criteria at this stage.

After selecting the literature from the search process, literature identification is carried out by searching through relevant meta-analyses or research citations. The literature identified by the citation search were 29, then 25 studies were dropped, leaving 4 studies to continue to the next stage. The four studies can be accessed in full text. Then, one study don't use English. The selection stage through citations resulted in 3 studies that could be subjected to meta-analysis. However, the two studies from citation selection were the same studies as the two studies found through database selection, so it's leaving only 1 study. A total of 8 studies were obtained from the selection process

to be subjected to meta-analysis. The effect sizes of the 8 studies used in the pooling process are 9 effect sizes.

Table 1.
Data Information

Research, year	Country	Type of disease	Number of samples	Mean of age	Death anxiety scale	Spiritual well-being scale
Feng (2021)	China	Gynecological Cancer	586	49.38	T-DAS	SWB32
Aderyani (2021)	Iran	Various Chronic Disease	150	63.26	T-DAS	FACIT-Sp
Nezami (2020)	Iran	Breast & Cervical Cancer				
Nezami (2020)	Iran	Gastric & Pancreatic Cancer	160	NR	T-DAS	SWBS
Shirkavand (2018)	Iran	Various Cancers	185	65.8	T-DAS	Ferry & Dollman
Soleimani (2018)	Iran	Heart Disease	300	59.89	T-DAS	SWBS
Taghipour (2017)	Iran	Kidney Failure	123	52.5	T-DAS	SWBS
Mansori (2017)	Iran	Gynecological Cancer	230	40.17	T-DAS	SWBS
Shukla (2014)	India	Advanced Cancer	80	45	T-DAS	FACIT-Sp

The risk of bias was assessed using the Newcastle-Ottawa scale (NOS) checklist which was adjusted for cross-sectional studies (Herzog et al., 2013). The Newcastle-Ottawa scale checklist scores studies based on three domains, including; study group selection, group comparability and certainty of exposure and outcome. A range score of 0 to 10 was allocated to each study and a score of 6 or more was defined as low risk or high quality study. The results of the risk assessment of bias are shown in the following table;

Table 2.
Biased Risk Assessment

Research, year	Selection				Comparability	Outcomes		Total
	Representativeness of the sample	Sample Size	Non-respondent	Validated measurement tool		Assessment of the outcomes	Statistical Test	
Feng (2020)	*	*	*	* *		*	*	7
Aderyani (2020)	*	*		* *		*	*	6
Nezami (2020)	*			* *		*	*	6
Nezami (2020)	*			* *	*	*	*	6
Shirkavand (2018)	*	*		* *	*	*	*	6
Soleimani (2018)	*	*	*	* *		*	*	7
Taghipour (2017)	*	*	*	* *		*	*	7
Mansori (2017)	*	*		* *		*	*	6

Shukla (2014)	*	*	* *	*	5

*Note: *meets the criteria*

The results of the risk of bias test showed that there were 8 studies with a low risk of bias, namely a total score of 6 to 7 and a high risk of bias as many as 1 study with a total score of 5. The conclusion of the risk of bias test showed a low risk of bias.

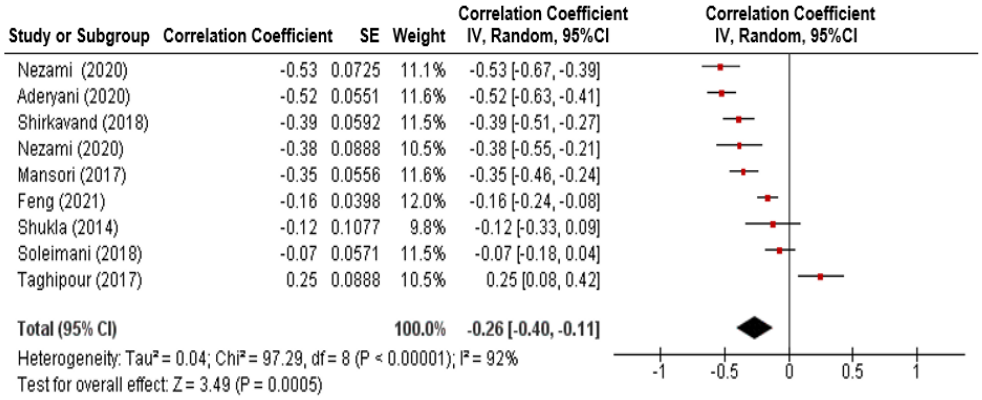


Figure 1
Forest Plot

The result of data analysis shows the effect size meta-analysis of spiritual well-being and death anxiety in people with chronic diseases, showing the number -0.26 (CI 95% = [-0.40, -0.11]. Results are interpreted using Cohen's (1992) guidelines, score r = -0.26 is in the range of -0.1 to -0.3 which means it belongs to the category of low correlation. The heterogeneity test results show an I2 score of 92%, based on the interpretation of Higgins (2003) shows a high level of heterogeneity. The data analysis uses Revman 5.4 program.

The results of the heterogeneity calculations (I2) show a value of 92% which means heterogeneity is included in the high heterogeneity category so that an analysis related to the high cause of that heterogeneity needs to be performed (Cuijpers, 2016). Subgroup analysis or meta-regression is recommended to explain the level of heterogeneity in research that has at least 10 studies in each sub-group. Visually it appears that there is one effect size that is quite likely to be a major cause of heterogeneity, namely the study by Taghipour et al., (2017) because the confidence interval does not intersect with eight other effect size (Aderyani et al., 2021; Feng et al., 2021; Mansori et al., 2017; Nezami et al., 2020; Shirkavand et al., 2018; Shukla & Rishi, 2014). In addition to observation through forest plots, the level of heterogeneity is possible because of variations in the type of chronic disease involved in research and also the cultural differences were seen from the country of origin this is also called clinical heterogeneity.

Assessment of publication bias is only done through funnel plot graphs. The funnel plot graph shows the standard error on the Y axis and the effect size on the X axis. It can be seen from the funnel plot that there are nine effect sizes that are not symmetrically distributed. The conclution that there is an indication of publication bias.

The study states that if there are indications of publication bias, a sensitivity analysis is necessary. If there is an indication of publication bias, then studies with the fewest subjects attempted are excluded from the analysis (Borenstein et al., 2009; Higgins & Green, 2009). The second funnel plot test showed that the final results were fixed or identical, so publication bias did not play a

significant role in this meta-analysis.

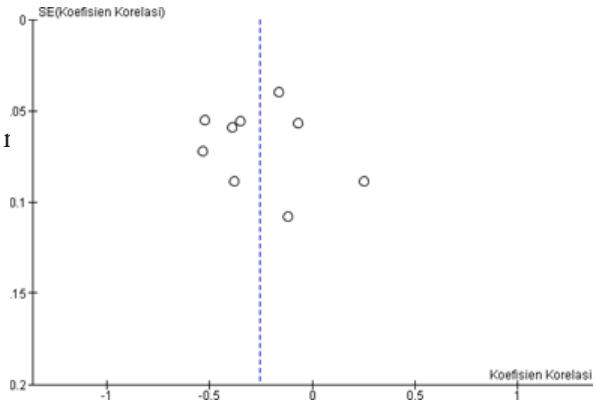


Figure 2
Funnel Plot 1

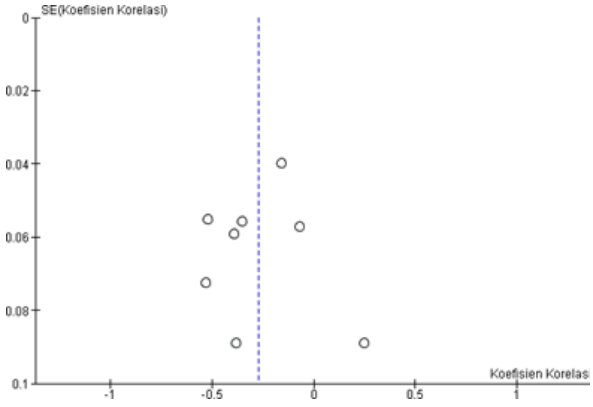


Figure 3
Funnel Plot 2

The GRADE approach was chosen to systematically explain the important factors in interpreting the results of the meta-analysis (Andrews et al., 2013). This approach helps to calculate the meta-analysis results, or the level of confidence in the estimation accuracy of the effect size. The results of the GRADE quality test against meta-analysis are divided into high, moderate, low and very low levels. Quality research from this meta-analysis starts at a low level because this research is included in an observational study (Dijkers, 2013). In the first domain, which is common risk, researchers increase quality by one level. This is done taking into account the number of studies falling into the low bias risk category (Table 2), so that the level of increase becomes moderate.

The assessment of the second domain, namely the consistency domain, is not downgraded in quality. This was chosen because although the variation in effect size is fairly high, which is indicated by a high I2 value, the heterogeneity can still be explained. The third domain is the directness domain, researchers reduce the level of quality. Although all of the studies included in this meta-analysis have met the criteria, the majority of these studies are from three difference countries (Iran, China and India), so there are doubts regarding external validity or opportunities for conclusions to be drawn. This relates to research results that are expected to be generalized to populations from different countries or cultures. The fourth domain is precision, reflecting the overall effect calculation. In this domain, researchers raise the level of quality. Research is said to be precise if the sample size included in the study is large and the confidence interval does not cut the null effect. The number of samples included in this study was quite large, as many as 1,814 people with chronic diseases, and the confidence interval did not cut the null effect on the forest plot. If the confidence interval does not cut the null effect, it means that the results of the meta-analysis are statistically significant. The last assessment is the domain of publication bias, the quality rating is lowered because there are indications of publication bias (Figure 2).

The final assessment is the domain of publication bias, the quality rating remains or is not lowered because even though there are indications of publication bias (figure 2). However, after sensitivity analysis (figure 3) showed the same or identical results, so publication bias did not play a major role in the results of the meta-analysis. The GRADE quality assessment concludes that the estimated effect size value from this meta-analysis is in at moderate or moderate level, so it can be interpreted that the actual effect size is likely to be close to the estimated effect

Table 3
GRADE Quality Evaluation

Domain Evaluated	Evaluation Results	Direction	Level
Risk of Bias	Low Risk of Bias	Up	Moderate
Consistency (Heterogeneity in meta-analyses)	Consistency	Fixed	Moderate
Directness (Question/ answer directness-external validity)	Indirectness	Down	Low
Precision (Small sample size, wide IK)	Precision	Up	Moderate
Publication Bias	Low Publication Bias	Fixed	Moderate

The findings show that (1) Aderyani's article (2021) is a multivariate research. The number of respondents was 150, with data collection through demographic checklists, questionnaires, and interviews. The results of the analysis used a multi-regression analysis technique with the result of the correlation of spiritual well-being and death anxiety r = -0.52, p = 0.001; (2) Feng's article (2021) is a multivariate research with 586 respondents using the enrolled sampling technique. Data collection through questionnaires, with multiple linear regression analysis techniques, the results of the correlation of the two variables were r= -0.161 p= 0.001; (3) Nezami's article (2020) is a research on differences and correlations using a demographic questionnaire and a variable measuring questionnaire, the number of respondents is 160 and using the anava analysis technique and pearson correlation. There are two results in this study. The correlation of spiritual well-being with death anxiety in breast and cervical cancers (r= -0.377, p= 0.001) and the correlation of spiritual well-being with death anxiety in gastric and colorectal cancers (r= -0.530, p= <0.001); (4) Shukla's article (2014) is a multivariate study with 80 respondents using purposive sampling techniques and multiple regression analysis techniques. The correlation score of the two variables was found r= -0.122; (5) Shirkavand's article (2018) is a multivariate research with a total of 185 respondents from convenience sampling, and multiple regression analysis techniques with the results of a correlation of the two variables p= 0.001, r= -0.39; (6) Soleimani's article (2018) is a multivariate research, with 300 respondents. The analysis technique uses conditional process analysis. The results of the correlation of the two variables are r= -0.074, p< 0.05; (7) Mansori's article (2017) uses death anxiety as the independent variable and spiritual well-being as the dependent variable. The article has 230 respondents obtained from convenience sampling and using analysis techniques using pearson's correlation coefficient and the linear regression model. The results of the correlation of the two variables show r= -0.35, p= 0.001; and (8) the Taghipour's article (2017) uses the term spiritual health as spiritual well-being, 123 research respondents. Death anxiety as the independent variable and spiritual well-being as the dependent variable. The analysis technique uses linear regression and the results of the correlation of the two variables are r= 0.25 p= < 0.05.

The result of effect size is interpreted using Cohen's (1992) guideline. The score of r= -0.26 is in the range of -0.1 to -0.3 which means the score category is low correlation. The interpretation of these values is the association of spiritual well-being and death anxiety in people with chronic diseases in the low to moderate category. The negative correlation indicates that the higher the spiritual well-being of people with chronic disease, the lower the death anxiety felt by people with chronic disease, and vice versa.

According to terror management theory (TMT), death anxiety is present in individuals when a sense of security is reduced and intense fear arises (Pyszczynski et al., 2015; Zhang et al., 2019), so that death anxiety is present when individuals are faced with an intimidating disease (Sherman et al., 2010). Research suggests that death anxiety causes adverse consequences and endangers quality of life (Gonen et al., 2012; Neel et al., 2015). Soleimani et al., (2018) research

state people with chronic diseases with higher spiritual well-being are more likely to accept death as a natural process in life. People with chronic diseases can recognize the inevitability of death and accept it, rather than experiencing excessive anxiety about it. Hadzic's research (2011) states that spiritual well-being brings hope to dying individuals and helps them find meaning in life. Improving spiritual well-being can make people with chronic disease feel emotionally supported. In addition, patients' self-esteem and optimism tend to increase when they have high spiritual well-being (Schnall et al., 2010).

TMT views religion as a type of cultural worldview that meets human needs (Vail et al., 2010). Spiritual well-being in people with chronic diseases is present because individuals surrender to God and religion (Ghodrati & Ebrahimi, 2020). Religious beliefs and spiritual values shape spiritual well-being into a way of life, a lifestyle that changes life to be enjoyable and purposeful, who seek options to sustain and enrich life (Kozier et al., 2012). Spiritual well-being can be said to be a concept about how to overcome problems and stress caused by disease and as a health dimension that leads to the integration of other aspects of life (Aderyani et al., 2021).

The studies in this study were found only in countries in Asia (Iran, China and India). The difference in the relationship between the two variables based on the geographic area may be caused by several factors such as spiritual-religion and cultural norms between countries. Terror management theory offers managing death anxiety with belief in an internalized cultural worldview. The concept of spiritual well-being is influenced by the culture of each country (Lo et al., 2011). Iran is a religious country and the majority of the population is Muslim (Rahnama et al., 2015). Becoming a Muslim is associated with a high level of faith and belief in God. When you have a chronic or incurable disease, Muslims often report that religious beliefs and practices are a source of comfort in reducing physical and spiritual stress (Jafari et al., 2013). The research of Nezami et al., (2020) states that Iranian people tend to pay attention to the search for meaning through spiritual-religious aspects that shape spiritual well-being in people with chronic disease so that it can reduce death anxiety. This is supported by research by Rahnama et al., (2015) that spiritual approach is the main coping strategy in Iranian cancer patients, who consider spirituality as the main source of coping and hope.

In contrast to Iran, only 4% of Chinese believe the same (Feng et al., 2021). The Chinese are less religiously oriented than in Western countries, however, a study conducted in China on gynecologic cancer patients, showed that religious belief is positively correlated with spiritual well-being (Chen et al., 2021), which may be related to the belief that God or a greater power will give strength and help inner peace. Although the majority of people in China are not religious, Chinese society is influenced by several traditional Chinese cultures, such as Confucianism, Taoism and Buddhism. These traditional cultural beliefs, show beliefs and behaviors such as religion that are closely related to spiritualitas (Dong et al., 2017), so that it can increase spiritual well-being among chronic diseases and reduce the anxiety of death.

Research on death anxiety was found in a number of people with chronic diseases in Indonesia such as stroke (Hamjah et al., 2018), heart disease (Emaliyawati et al., 2017) and kidney failure (Agustin & Sawiji, 2019; Dewina et al., 2018). Another study found that spiritual well-being among people with chronic diseases showed moderate to high scores (Mulyani et al., 2018; Nuraeni et al., 2018; Suara et al., 2017), but there is no research that directly integrates the correlation of death anxiety with spiritual well-being in people with chronic diseases in Indonesia. Indonesian society, if observed, has a strong religious culture as in Iran, views religion as a very important need throughout life and will increase when an individual suffers from a disease. An understanding of religiosity and spiritual practice is an integral element of culture and is an important basis needed to

provide holistic health services (Rochmawati et al., 2018). Research from Tampubolon et al., (2021) shows that people with chronic diseases in Indonesia experience increased spiritual needs. The spiritual aspect is still often ignored by health workers compared to the physical aspect. Fulfillment of spiritual needs to be given to the care of chronic sufferers in order to improve spiritual well-being. Pearce et al., (2012) mention that chronic diseasess that receive little spiritual care than they want, risk having low spiritual well-being, so the application of spiritual care needs to be given in medical care.

The research of Nezami et al., (2020) said that health workers in Iran have a comprehensive view of the dimensions where health staff provide appropriate services to chronic patients so that spiritual-based care can shape spiritual well-being. According to research by Vallurupalli et al., (2012) doctors (87%) and nurses (85%) were significantly involved in improving spiritual well-being among cancer patients. Spiritual well-being, as a protector, has an important role in reducing death anxiety, increasing adaptation (Kumar & Parashar, 2015), and reducing anxiety and stres (Taheri-kharameh, 2016). Health workers may have limited expertise in spiritual-religious, but emotional support and positive personal values can have an influence on the spiritual well-being of people with chronic diseases (Lo et al., 2011). In addition, attachment and good relations with the closest people, family, friends and spiritual figures, can help people with chronic diseases find support and meaning in life, thereby gradually increasing spiritual well-being and reducing death anxiety. Attention to the sources of spiritual well-being and taking into account factors such as culture, spiritual-religion, and individual values, is needed to develop clinically relevant interventions.

The heterogeneity score of this study was included in the high category. The high heterogeneity is influenced by the small number of effect sizes that are included in the calculation of the effect size. The quality of the estimated effect size as measured by the GRADE approach shows low results, which means that the true effect is likely to be close to the calculated effect size estimate.

The limitations of this study were found: (1) he existence of a wide variety of chronic diseases. Therefore it is necessary to limit the main chronic diseases; (2) The demographic age is too broad because there is no age range with a lot of variation, such as two studies with participants aged over 18 years old; two studies with participants aged over 60 years old; one study with participants aged 21 to 92 years old; one study with participants aged 22 to 92 years old, one study with participants aged 18 to 72 years old; and in one study there was no information on the age range of the participants; (3) The variations in the scope of the journals that are summarized are too broad, such as one study from a journal of spirituality and religion; four studies from medical journals; one study from an education and health journal; and one study from a psychology journal

CONCLUSION

This meta-analysis found a negative relationship between spiritual well-being and death anxiety in chronic diseases people with a low effect size. This suggests that spiritual well-being can be a variable to reduce death anxiety in people with chronic diseases. The quality level of this study according to GRADE is in the moderate category, which means that it is close to the expected effect.

All studies involved in pooling effect size comes from countries outside Indonesia, so there is an opportunity to examine the relationship between spiritual well-being and death anxiety in chronic diseases in Indonesia. In addition, further researchers can conduct meta-analysis research focusing on interventions to increase spiritual well-being and reduce death anxiety. According to the data

on increasing chronic diseases in Indonesia and the world from year to year, health professionals and policy-makers need to consider developing appropriate psychological interventions for chronic diseases. This makes it possible increase spiritual well-being and reduce death anxiety. Besides that, caring for people with chronic diseases by considering the cultural aspects of society needs to be done, considering that in this study it was found that cultural aspects sufficiently influence the relationship between the two variables.

REFERENCES

*Aderyani, M. R., Alimadadi, E., Hajrahimian, M., & Taheri-Kharameh, Z. (2021). Does spirituality predict death anxiety in chronically ill older adults in a religious context? *Journal of Religion, Spirituality & Aging*, 33(3), 350–360. https://doi.org/10.1080/15528030.2020.1814936

Agustin, I. M. (2019). Respon psikologis dalam siklus penerimaan menjalani terapi hemodialisa pasien gagal ginjal kronik. *Jurnal Ilmiah Kesehatan Keperawatan*, 15(1), 12–17. https://doi.org/10.26753/jikk.v15i1.309

Al-Natour, A., Al Momani, S. M., & Qandil, A. M. A. (2017). The relationship between spirituality and quality of life of jordanian women diagnosed with breast cancer. *Journal of Religion and Health*, 56(6), 2096–2108. https://doi.org/10.1007/s10943-017-0370-8

Andrews, J., Guyatt, G., Oxman, A. D., Alderson, P., Dahm, P., Falck-Ytter, Y., Nasser, M., Meerpohl, J., Post, P. N., Kunz, R., Brozek, J., Vist, G., Rind, D., Akl, E. A., & Schünemann, H. J. (2013). Grade guidelines: 14. Going from evidence to recommendations: The significance and presentation of recommendations. *Journal of Clinical Epidemiology*, 66(7), 719–725. https://doi.org/10.1016/j.jclinepi.2012.03.013

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. John Wiley & Sons, Ltd. retrieved from https://www.agropustaka.id/wp-content/uploads/2020/04/agropustaka.id_buku_Introduction-to-Meta-Analysis.pdf

Chen, J., You, H., Liu, Y., Kong, Q., Lei, A., & Guo, X. (2021). Association between spiritual well-being, quality of life, anxiety and depression in patients with gynaecological cancer in China. *Medicine*, 100(1). https://doi.org/10.1097/MD.0000000000024264

Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, 112(1), 155–159. retrieved from https://web.mit.edu/hackl/www/lab/turkshop/readings/cohen1992.pdf

Cuijpers, P. (2016). *Meta-analyses in mental health research: A practical guide*. Vrije Universiteit. retrieved from https://indd.adobe.com/view/5fc8f9a0-bf1e-49d3-bf5f-a40bfe5409e0

Dewina, A., Emaliyawati, E., & Praptiwi, A. (2018). Death anxiety level among patients with chronic renal failure undergoing hemodialysis. *Journal of Nursing Care*, 1(1), 1–7. https://doi.org/10.24198/jnc.v1i1.15757

Dijkers, M. (2013). Introducing grade: A systematic approach to rating evidence in systematic reviews and to guideline development. *Presented in KT Update*, 1(5), 1–9. retrieved from https://ktdrr.org/products/update/v1n5/dijkers_grade_ktupdatev1n5.pdf

Dong, M., Wu, S., Zhu, Y., Jin, S., & Zhang, Y. (2017). Secular examination of spirituality-prosociality association. *Archive for the Psychology of Religion*, 39(1), 61–81. https://doi.org/10.1163/15736121-12341332

Emaliyawati, E., Sutini, T., Ibrahim, K., Trisyani, Y., & Prawesti, A. (2017). Pengalaman psikologis pasien infark miokard akut selama dirawat di ruang intensif. *Jurnal Pendidikan Keperawatan Indonesia*, 3(1), 32. https://doi.org/10.17509/jpki.v3i1.7477

*Feng, Y., Liu, X., Lin, T., Luo, B., Mou, Q., Ren, J., & Chen, J. (2021). Exploring the relationship between spiritual well-being and death anxiety in patients with gynecological cancer: A cross-section study. *BMC Palliative Care*, 20(1), 1–11. https://doi.org/10.1186/s12904-021-00778-3

Ghodrati, F., & Ebrahimi, A. (2019). The importance of spirituality therapy and its elements; prayer, religious worship, and prayer with god in nursing care. *International Journal of Multicultural and Multireligious Understanding*, 6(6), 909–923. retrieved from https://ijmmu.com/index.php/ijmmu/article/view/1425

Gonen, G., Kaymak, S. U., Cankurtaran, E. S., Karslioglu, E. H., Ozalp, E., & Soygur, H. (2012). The factors contributing to death anxiety in cancer patients. *Journal of Psychosocial Oncology*, 30(3), 347–358. https://doi.org/10.1080/07347332.2012.664260

Hadzic, M. (2011). Spirituality and mental health: Current research and future directions. *Journal of Spirituality in Mental Health*, 13(4), 223–235. https://doi.org/10.1080/19349637.2011.616080

Hamjah, A., Praptiwi, A., & Sari, E. A. (2018). Kecemasan kematian pada pasien pasca stroke. *Jurnal Keperawatan 'Aisyiyah*, 6(1), 27–36. retrieved from https://journal.unisa-bandung.ac.id/index.php/jka/article/view/95

Herzog, R., Álvarez-Pasquin, M. J., Díaz, C., Del Barrio, J. L., Estrada, J. M., & Gil, Á. (2013). Are healthcare workers' intentions to vaccinate related to their knowledge, beliefs and attitudes? a systematic review. *BMC Public Health,* 13(1), 154. https://doi.org/10.1186/1471-2458-13-154

Higgins, J. P. T. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal,* 327(7414), 557–560. retrieved from https://doi.org/10.1136/bmj.327.7414.557

Higgins, J., & Thomas, J. (2021). *Assessing risk of bias due missing results in a synthesis*. In Cochrane Handbook for Systematic Reviews of Interventions (6.2). Cochrane Training. retrieved from https://training.cochrane.org/handbook/current/chapter-13

Hughes, S. J. (2012). Kozier and Erb's Fundamentals of Nursing: Concepts, Process and Practice. *Nurse Education in Practice*, 12(2). https://doi.org/10.1016/j.nepr.2011.09.002

Jafari, N., Farajzadegan, Z., Zamani, A., Bahrami, F., Emami, H, & Loghmani, A. (2013). Spiritual well-being and quality of life in Iranian women with breast cancer undergoing radiation therapy. *Supportive Care in Cancer*, 21(5), 1219–1225. https://doi.org/10.1007/s00520-012-1650-1

Kementerian Kesehatan RI. (2021). *Profil kesehatan indonesia tahun 2020*. Kementerian Kesehatan

Republik Indonesia.

Kristofferzon, M.-L., Engström, M., & Nilsson, A. (2018). Coping mediates the relationship between sense of coherence and mental quality of life in patients with chronic illness: A cross-sectional study. *Quality of Life Research*, 27(7), 1855–1863. https://doi.org/10.1007/s11136-018-1845-0

Kumar, C. R. S., & Parashar, N. (2015). Death anxiety, coping and spirituality among cancer patients. *Indian Journal of Positive Psychology*, 6(3), 291–294. https://doi.org/https://doi.org/10.15614/ijpp%2F2015%2Fv6i3%2F147218

Lo, C., Hales, S., Zimmermann, C., Gagliese, L., Rydall, A., & Rodin, G. (2011). Measuring death-related anxiety in advanced cancer. *Journal of Pediatric Hematology/Oncology,* 33(2), 140–145. https://doi.org/10.1097/MPH.0b013e318230e1fd

MacLeod, R., Wilson, D. M., Crandall, J., & Austin, P. (2017). Death Anxiety Among New Zealanders: The Predictive Roles of Religion, Spirituality, and Family Connection. *OMEGA - Journal of Death and Dying*, 80(1), 3–19. https://doi.org/10.1177/0030222817724307

*Mansori, Y. K., Dolatian, M., Shams, J., & Nasiri, M. (2017). Relationship between death anxiety and spiritual well-being in patients with gynecologic cancer. *Advances in Nursing and Midwifery,* 27(28–34). https://doi.org/https://doi.org/10.21859/ANM-027025

McCaffrey, N., Bradley, S., Ratcliffe, J., & Currow, D. C. (2016). What aspects of quality of life are important from palliative care patients' perspectives? A systematic review of qualitative research. *Journal of Pain and Symptom Management*, 52(2), 318–328. https://doi.org/10.1016/j.jpainsymman.2016.02.012

Megari, K. (2013). Quality of life in chronic disease patients. *Health Psychology Research*, 1(3), 141–148. https://doi.org/10.4081/hpr.2013.e27

Moeini, M., Ghasemi, T. M. G., Yousefi, H., & Abedi, H. (2012). The effect of spiritual care on spiritual health of patients with cardiac ischemia. *Iranian Journal of Nursing and Midwifery Research*, 17(3), 195–199. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3696210/

Mulyani, T., Widianti, E., & Mirwanti, R. (2018). Spiritual well-being of post-stroke patients in Neurological Polyclinic Of Al Ihsan Regional Public Hospital, West Java Province. *Jurnal Pendidikan Keperawatan Indonesia*, 4(1), 42–51. https://doi.org/10.17509/jpki.v4i1.12341

Neel, C., Lo, C., Rydall, A., Hales, S., & Rodin, G. (2015). Determinants of death anxiety in patients with advanced cancer. *BMJ Supportive & Palliative Care*, 5(4), 373–380. https://doi.org/10.1136/bmjspcare-2012-000420

*Nezami, N., Dashti, F., Alilu, L., & Heidari, S. (2020). Comparing relationship between spiritual well-being and death anxiety among women with breast and cervical cancers and women with gastric and colorectal cancers. *Journal of Education and Health Promotion*, 9(1), 263. https://doi.org/10.4103/jehp.jehp_287_20

Nuraeni, A., Mirwanti, R., & Anna, A. (2018). Relationship of spiritual-wellbeing with anxiety and depression in patients with cardiac heart disease. *Belitung Nursing Journal,* 4(1), 45–50. https://doi.org/10.33546/bnj.231

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *The BMJ,* 372. https://doi.org/10.1136/bmj.n71

Pearce, M. J., Coan, A. D., Herndon, J. E., Koenig, H. G., & Abernethy, A. P. (2012). Unmet spiritual care needs impact emotional and spiritual well-being in advanced cancer patients. *Supportive Care in Cancer*, 20(10), 2269–2276. https://doi.org/10.1007/s00520-011-1335-1

Pyszczynski, T., Solomon, S., & Greenberg, J. (2015). *Thirty years of terror management theory.* In Advances in Experimental Social Psychology (pp. 1–70). https://doi.org/10.1016/bs.aesp.2015.03.001

Rahnama, P., Javidan, A. N., Saberi, H., Montazeri, A., Tavakkoli, S., Pakpour, A. H., & Hajiaghababaei, M. (2015). Does religious coping and spirituality have a moderating role on depression and anxiety in patients with spinal cord injury? A study from Iran. *Spinal Cord*, 53(12), 870–874. https://doi.org/10.1038/sc.2015.102

Rochmawati, E., Wiechula, R., & Cameron, K. (2018). Centrality of spirituality/religion in the culture of palliative care service in Indonesia: An ethnographic study. *Nursing & Health Sciences,* 20(2), 231–237. https://doi.org/10.1111/nhs.12407

Schnall, E., Wassertheil-Smoller, S., Swencionis, C., Zemon, V., Tinker, L., O'Sullivan, M. J., Van Horn, L., & Goodwin, M. (2010). The relationship between religion and cardiovascular outcomes and all-cause mortality in the women's health initiative observational study. *Psychology & Health*, 25(2), 249–263. https://doi.org/10.1080/08870440802311322

Sherman, D. W., Norman, R., & McSherry, C. B. (2010). A comparison of death anxiety and quality of life of patients with advanced cancer or aids and their family caregivers. J*ournal of the Association of Nurses in AIDS Care*, 21(2), 99–112. https://doi.org/10.1016/j.jana.2009.07.007

*Shirkavand, L., Abbaszadeh, A., Borhani, F., & Momenyan, S. (2018). Correlation between spiritual well-being with satisfaction with life and death anxiety among elderlies suffering from cancer. *Electronic Journal of General Medicine*, 15(3), 4–10. https://doi.org/10.29333/ejgm/85501

*Shukla, P., & Rishi, P. (2014). A corelational study of psychosocial & spiritual well being and death anxiety among advanced stage cancer patients. *American Journal of Applied Psychology,* 2(3), 59–65. https://doi.org/https://doi.org/10.12691/ajap-2-3-1

Soleimani, M. A., Bahrami, N., Allen, K., & Alimoradi, Z. (2020). Death anxiety in patients with cancer: A systematic review and meta-analysis. *European Journal of Oncology Nursing*, 48(8), 1–9. https://doi.org/10.1016/j.ejon.2020.101803

Soleimani, M. A., Lehto, R. H., Negarandeh, R., Bahrami, N., & Chan, Y. H. (2016). Death anxiety and quality of life in Iranian caregivers of patients with cancer. *Cancer Nursing,* 40(1), 1–10. https://doi.org/10.1097/NCC.0000000000000355

*Soleimani, M. A., Sharif, S. P., Yaghoobzadeh, A., Yeoh, K. K., & Panarello, B. (2018). Exploring the relationship between spiritual well-being and death anxiety in survivors of acute myocardial infarction: Moderating role of sex, marital status and social support. J*ournal of Religion and Health*, 57(2), 683–703. https://doi.org/10.1007/s10943-017-0554-2

Suara, E., Mardiyono, M., & Anggorowati, A. (2017). Relationship between demographic characteristics and spiritual well-being among cancer survivors. *Belitung Nursing Journal,* 3(4), 405–411. https://doi.org/10.33546/bnj.74

Taghipour, B., Mehravar, F., Nia, H., Shahidifar, S., Hasani, S., & Alahyari, Z. (2017). Association between death anxiety and spiritual intelligence with the spiritual health and quality of life in hemodialysis patients. *Journal of Nursing and Midwifery Science*s, 4(2), 26–32. https://doi.org/10.4103/2345-5756.231742

Taheri-Kharameh, Z. (2016). The relationship between spiritual well-being and stress coping strategies in hemodialysis patients. *Health, Spirituality and Medical Ethics*, 3(4), 24–28. retrieved from https://jhsme.muq.ac.ir/article-1-106-.pdf

Tampubolon, N. R., Fatimah, W. D., & Hidayati, A. U. N. (2021). Hambatan-hambatan implementasi perawatan paliatif di Indonesia: Systematic review. *Jurnal Kesehatan*, 14(1), 1–10. retrieved from https://journals.ums.ac.id/index.php/jk/article/view/12815

Tumanggor, R. O. (2019). Analisa konseptual model spiritual well-being menurut Ellison dan Fisher. *Jurnal Muara Ilmu Sosial, Humaniora, Dan Seni*, 3(1), 43–53. https://doi.org/10.24912/jmishumsen.v3i1.3521

Vail, K. E., Rothschild, Z. K., Weise, D. R., Solomon, S., Pyszczynski, T., & Greenberg, J. (2010). A terror management analysis of the psychological functions of religion. *Personality and Social Psychology Review*, 14(1), 84–94. https://doi.org/10.1177/1088868309351165

Vallurupalli, M., Lauderdale, K., Balboni, M. J., Phelps, A. C., Block, S. D., Ng, A. K., Kachnic, L. A., VanderWeele, T. J., & Balboni, T. A. (2012). The role of spirituality and religious coping in the quality of life of patients with advanced cancer receiving palliative radiation therapy. *The Journal of Supportive Oncology*, 10(2), 81–87. https://doi.org/10.1016/j.suponc.2011.09.003

WHO. (2020). *Noncommunicable diseases progress monitor 2020*. World Health Organization. retrieved from https://www.who.int/publications/i/item/9789240000490

WHO. (2021a). *Global health estimates: Leading causes of death*. World Health Organization. retrieved from https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death

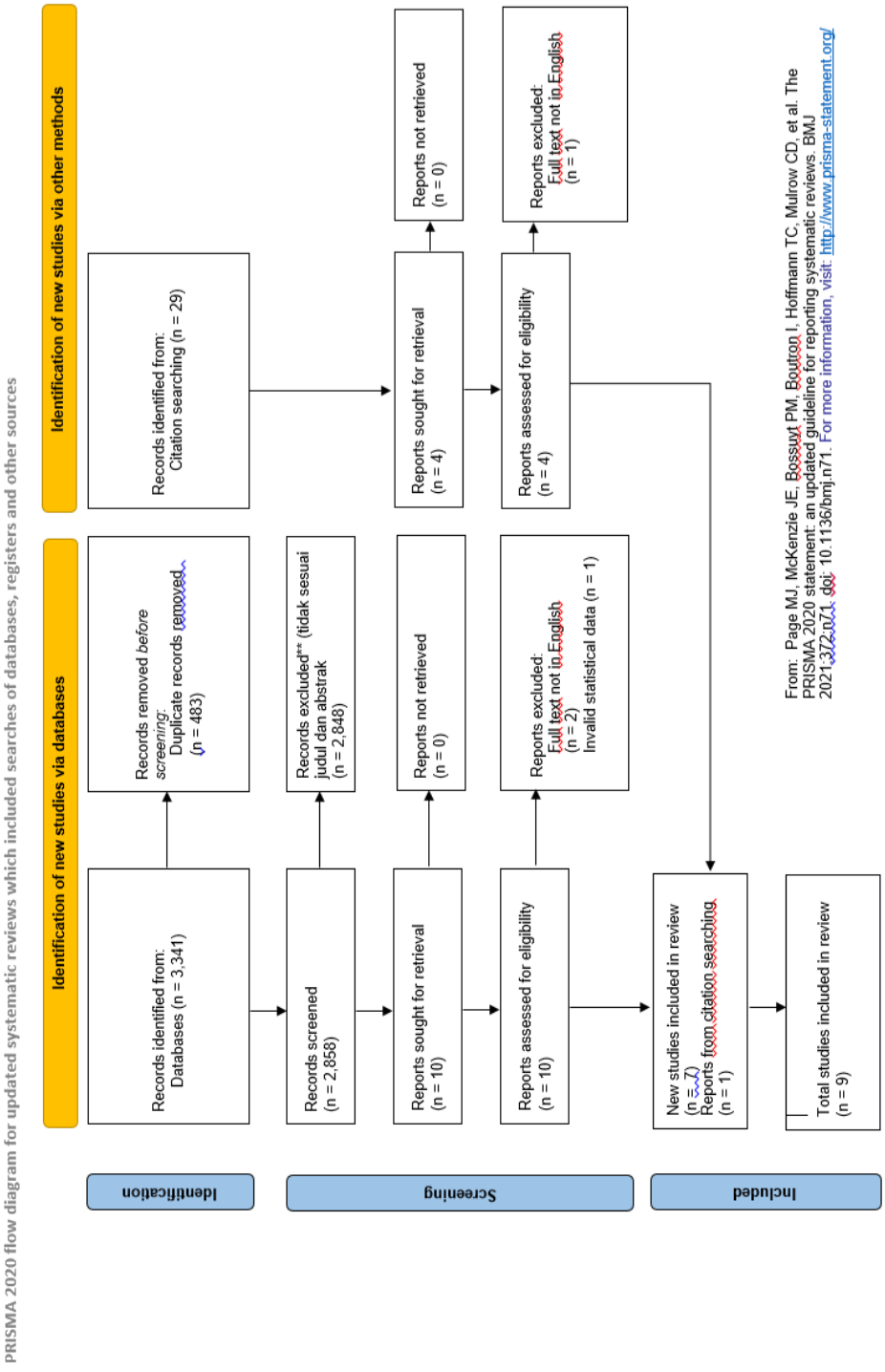
WHO. (2021b). *Noncommunicable diseases*. retrieved from https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases

Yaghoobzadeh, A., Soleimani, M. A., Allen, K. A., Chan, Y. H., & Herth, K. A. (2017). Relationship between spiritual well-being and hope in patients with cardiovascular disease. *Journal of Religion and Health*, 57(3), 938–950. https://doi.org/10.1007/s10943-017-0467-0

Zhang, J., Peng, J., Gao, P., Huang, H., Cao, Y., Zheng, L., & Miao, D. (2019). Relationship

between meaning in life and death anxiety in the elderly: Self-esteem as a mediator. *BMC Geriatrics,* 19(1), 1–8. https://doi.org/10.1186/s12877-019-1316-7

Appendix


PRISMA 2020 flow diagram for updated systematic reviews which included searches of databases, registers and other sources
Identification of new studies via databases
Identification of new studies via other methods
Records identified from: Databases (n = 3,341)
Records removed before screening: Duplicate records removed (n = 483)
Records identified from: Citation searching (n = 29)
Records screened (n = 2,858)
Records excluded** (tidak sesuai judul dan abstrak (n = 2,848)
Reports sought for retrieval (n = 10)
Reports not retrieved (n = 0)
Reports sought for retrieval (n = 4)
Reports not retrieved (n = 0)
Reports assessed for eligibility (n = 10)
Reports excluded: Full text not in English (n = 2) Invalid statistical data (n = 1)
Reports assessed for eligibility (n = 4)
Reports excluded: Full text not in English (n = 1)
New studies included in review (n = 2)
Reports from citation searching (n = 1)
Total studies included in review (n = 9)
Identification
Screening
Included
From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/