## SYSTEMATIC REVIEW

# The Effect of a Mindfulness-based Intervention on Quality of Life Among Patients Undergoing Dialysis: A Systematic Review

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#### ABSTRACT

Introduction: Most patients regard dialysis as a major burden, and their quality of life suffers as a result. Mindfulness-based intervention is a widely used approach in a wide range of applications, settings, and populations. The aim of this study was to investigate the recent surge in interest in mindfulness-based interventions and their efficacy in improving hemodialysis patients' quality of life. Methods: The search strategy was carried out by using search words in an online database with a specific keyword. The inclusion criteria for this review were: (1) study of experimental design, (2) only in hemodialysis or dialysis patients, (3) Mindfulness-based therapy, (4) Quality of life outcome measures were investigated. The search was restricted to English and Indonesian publications from 2000 to 2020. The Critical Appraisal Skills Program (CASP) tool, which is available for intervention studies, was used to assess the quality of all of the included studies. Results: The initial search strategy yielded 318 papers for this study. Five papers met the inclusion criteria after a thorough reading of these papers and application of the inclusion and exclusion criteria. Mindfulness-Based Stress Reduction (MBSR), telephone-adapted Mindfulness-Based Stress Reduction (tMBSR), and Mindfulness-Based Cognitive Therapy were used in the interventions (MBCT). The programs ranged in length from 8 to 12 weeks. Body screening, gentle stretching, and yoga techniques were all part of the MBSR program. Various mindfulness-based interventions resulted in a significant improvement in the quality of life of dialysis patients. Conclusion: The quality and approach of the studies varied, but the huge percentage of them confirmed positive results on quality of life from mindfulness-based interventions. more research into simple care-based approaches that may improve our patients' overall well-being in meeting the demands of life-changing therapy-treated chronic disease and improving dialysis experience.

Keywords: Dialysis, Dialysis patients, Mindfulness-based Intervention, Quality of life, QOL, Systematic review

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#### **INTRODUCTION**

Kidney disease is a significant public health issue that impacts more than 750 million people worldwide. (1,2). According to estimation, approximately 10 percent of the population worldwide are diagnosed with chronic kidney failure and About 10% of this patient population requires dialysis or transplantation to survive (3). Although in developed countries the incidence and impact of kidney disease are well established, emerging research indicates developing countries have a similar, or perhaps greater, the burden of kidney disease. The prevalence of Chronic Kidney Disease (CKD) in developing countries was 14.3% in the general population, and 36.1% in the high-risk population (4).

Most patients view dialysis as a heavy burden; they are much lower in Quality of Life (QOL) than patients with diabetes or malignancies (5–7) . In the field of nephrology, about 10 perQOL has been identified as a vital Patient-Reported Outcome Measure (PROM) (8) . Physical, biological, psychological, social, and cultural factors influence the quality of life of patients undergoing dialysis (6,7). Financial dependence, inability to fulfill family responsibilities, and an active social life have all been linked to a lower quality of life in patients undergoing long-term hemodialysis, as have mental health issues like depression or anxiety (9). Also, reduced QOL itself is an independent cause in patients with an elevated risk of cardiovascular disease and mortality (5,10). Therefore it is significant to improve QOL in CKD patients.

Mindfulness-based intervention is a common approach in various applications, settings, and populations (11). Mindfulness-based intervention are derived from Buddhist practices and adapted for secular administration (12). They integrate breathing techniques and meditation exercises and strive in a non-judgmental manner to connect attention to the present moment (13). Mindedness-based therapies are particularly effective in treating many psychiatric conditions and physical diseases as they deal with emotional and physical aspects (14). Training in mindfulness could improve mental, physical, emotional (15), and sleep guality (16). A systematic analysis of 15 studies performed by the Merkes Center showed that mindfulness had no side effects and no special negative consequences (17). A previous systematic review by (18) found that results and treatments showed a range of outcomes, despite the fact that the majority of participants reported great outcomes of meditation on measures such as anxiety, stress, depression, sleep disorders, and quality of life. The aim of this study is therefore to examine the recent surge in interest in mindfulness-based interventions and its effectiveness in improving the quality of life among hemodialysis patients.

#### MATERIALS AND METHODS

#### Design

This study was a systematic review of previous findings. This study followed for reporting systematic reviews to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) checklist.

#### Searching strategies

The searching strategy was performed using search words in the online database including PubMed, Cumulative Index for Nursing and Allied Health Literature (CINAHL), PsycINFO and Cochrane Central Registry of Controlled Trials (CENTRAL), and google scholar: Mindfulness or meditation or mindfulness \* or MBSR or MBCT or M-BCT or meditation or meditation \* or Vipassana or satipa hana or anapanasati or Zen or Pranayama or Kriya or zazen or shambhala or buddhi and hemodialysis or dialysis and quality of life or QOL or HRQOL or quality of life-related to health (2000~2020). This review's inclusion criteria were: (1) experimental design research, (2) only in patients with hemodialysis or dialysis, (3) carefulnessbased intervention, (4) quality of life outcome measures examined. Word was limited to English and Indonesian, and from 2000 to 2020 years of writing. The Search Plan will be carried out on March 13, 2020. The studies were grouped according to the type of the described or trialed intervention.

#### Data extraction

Both the titles and abstracts recorded from electronic search were submitted to the database management systems, and any duplicate entries were immediately detected and deleted. Two authors independently reviewed the titles and abstracts extracted from the initial electronic searches. Complete text met our inclusion criteria, and where there is insufficient information in the abstract as to whether the research meets inclusion criteria, the complete published text was collected and reviewed separately. The complete texts were included in the reviewers were initial qualitative synthesis by two independent reviewers using a standard form including author and year of publication, nature, and setting of the research, intervention, time and scale follow-up test, and performance. Disagreements between two reviewers were resolved by inviting and debating third authors.

#### **Quality Assessment**

All of the included studies assessed the quality based on the Critical Appraisal Skills Program (CASP) tool available for intervention study. This assessment was independently performed by two reviewers, and any differences were addressed in the meeting with third reviewers. At this point, any studies found to be lacking in methodological rigor were excluded.

#### RESULTS

#### Searching results

TThis study identified 318 papers from the initial search strategy. Once titles and abstracts were systematically reviewed, 24 articles were selected as possible studies for inclusion in the full-text study. The Process is summarized in Figure 1. After a full reading of these papers and applying the inclusion and exclusion criteria, five papers that met the inclusion criteria were found.

#### **Characteristics of included studies**

Of the 5 studies reviewed, one was categorized as Randomized controlled trial (RCT) (19), and three were categorized as quasi-experimental studies (15,20,21). One analysis was graded as a mixed approach with an embedded technique at the same time (22).

Many of the experiments were carried out in one hospital setting unit for hemodialysis (15,19–22). Two experiments were carried out in the United States (15,19), one in the Middle East (20), and the remaining studies were carried out in South Korea (21) and Indonesia(22). All studies were conducted in the period 2009 to 2019 (Table I).

#### **Quality assessment**

Author &	Intervention	Design & setting	Measure	Outcome	CASP score
Year					
Kathleen et al, 2009, USA	<ul> <li>Mindfulness-Based stress Reduction (MBSR)</li> <li>8-weeks course con- sisted of once-weekly evening classes and a day-long retreat</li> </ul>	• Queasy experi- ment conduct- ed to 16 partic- ipants	Linear Analogue Self-Assessment (LASA)	Significantly im- proved after the in- tervention for overall Quality of Life (QOL) ( <i>p</i> =.04).	Moderate risk
Gross et al, 2017, USA	<ul> <li>Included: body-scan techniques, gentle stretching, and yoga.</li> <li>Telephone-adapted Mindfulness-based Stress Reduction</li> </ul>	<ul> <li>Randomized controlled tri- al active-con-</li> </ul>	Mental and physical com-	<ul> <li>Adjusted mean MCS scores were</li> <li>6.23 (95% Con-</li> </ul>	Low risk
	<ul> <li>the tMBSR program had a "bookend" design and eight sessions: in- person, 3-hour workshops in week 1 and week 8, and 1.5-hour group teleconferences in weeks 2~7.</li> </ul>	al active-con- t r o l l e d , open-label trial • n=55	ponent summa- ry scores (MCS, PCS) of the Short Form-12v2 (SF-12)	fidence Interval [CI]: 1.66 to 10.80) points higher (bet- ter mental health) in the tMBSR group than in the tSupport group; twice the 3-point minimum clinical- ly important differ- ence	
				• There was im- provement in PCS scores between baseline and post-intervention within the tMBSR	
				change=-3.84, 95% Cl: -7.26 to -0.41, p=.03), but improvement was not maintained at follow-up.	

### Table I : Summary of included studies

Continue....

Sohn et 2018, Se Korea	al, eoul	<ul> <li>Cognitive Behavioral Therapy (CBT) and mindfulness</li> <li>12-weeks</li> </ul>	<ul> <li>Queasy experiment</li> <li>7 participants were patients at the SMG-SNU Boramae Medical Center and at one local clinic connected to this center</li> </ul>	W H O - QOL-BREF	The mean total QOL score measured by WHOQOL-BREF was 61.9±11.3 (range, 48~82). QOL-BREF showed significant im- provement (mean, 84.1±8.7; range, 71~92; p<.001).	Moderate risk
Solati et	al,	• Mindfulness-Based	• Queasy ex-	6-item Short	Decrease of 2.05	Moderate risk
2019, Iran		Cognitive Therapy	periment con-	Form Survey (SF-	points in mean score	
		(MBCT)	ducted to 50	36)	for quality of life in	
		<ul> <li>Program included</li> <li>45 minutes of dai- ly practice, formal exercises, and on</li> </ul>	participants in		the control group and	
			Dialysis unit of		an increase of 10.30	
			Hajar hospital,		points in the interven-	
			Shahrekord,		tion group at <i>p</i> <.01.	
			Southwest of			
		some days, unomerai	Iran			
		mindiumess exercis-				
Hasanudin	et	<ul> <li>Mindfulness-Based</li> </ul>	Mixed-meth-	Kidney Disease	MBCT interventions	high risk
al, 2019		Cognitive Therapy	od and uses a	Quality of Life	could improve par-	0
Indonesia		(MBCT)	concurrent em-	Scale Form-36	ticipant's quality of	
			bedded strategy	(KDQOL-36)	life	
		MBCT interventions	to compare the			
		were carried out for 45~60 minutes per meeting for six times.	qualitative and			
			quantitative con-			
			ducted in an ur-			
			ban hemodialysis			
			unit to 15 respon-			
			dents with mean			
			age was 65±13			
			years			

Note: CASP: Critical Appraisal Skills Programme; MCS: Mental Component Summary; PCS: Physical Component Summary; QOL: Quality of Life; WHOQOL-BREF: World Health Organization Quality of Life in Bref version;



**Figure 1 :** Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.

The quality of the studies was assessed using the CASP tool. Only one study was classified as strong with low risk of bias (19), three studies were classified as moderate in quality (15,20,21), and the remaining one study was classified as high risk of bias due to lack of randomization and low sample size (Table I).

#### Types of intervention implemented Discussion

Interventions used various mindfulnesshave based interventions, such as Mindfulness-Based Reduction (MBSR) (15), telephone-adapted Stress Mindfulness-Based Stress Reduction (tMBSR) [19], and Mindfulness-Based Cognitive Therapy (MBCT) (20-22). Programs ranged from 8 weeks to 12 weeks.

#### **Effects of interventions**

A significant increase in the quality of life among patients undergoing dialysis was seen in various mindfulness-based interventions. For example, a study conducted by (15) reported significant improvements for overall quality of life after the intervention. While the telephone-based MBSR applied by (19) reported better mental and physical components as being used to measure the quality of life after an intervention. Another study using an MBCT showed significant quality of life improvements (20,22). MBSR included body screening, gentle stretching, and yoga techniques.

#### DISCUSSION

All studies reported the effect on the quality of life of patients undergoing hemodialysis of a significant effect of mindfulness-based intervention. Similar to previous reviews in this area, meditation carefulness interventions have shown significant improvements in quality of life (23). The quality of evidence for the efficacy of mindfulness interventions in improving the quality of life is low. The available research shows clear effects on quality of life, and only types of the mindfulness-related intervention included mindfulness-based stress reduction (MBSR) and cognitive therapy focused on mindfulness (MBCT). Low is the quality of evidence for the effectiveness of mindfulness interventions to improve quality of life. The effect of mindfulness on health-related quality-of-life outcomes was shown to be of higher quality. This analysis follows on from previous reviews (23). Concluding that more well-designed, systematic and large-scale RCTs are required to establish an evidence base that can provide estimates of the effectiveness of knowledge of the quality of life in a more definitive way. In the meantime, a significant result of health treatments tends to be a quality of life. Patients undergoing dialysis would likely welcome a novel therapeutic approach for enhancing the quality of life, such as mindfullnessbased intervention.

More well-designed, rigorous, and large RCTs are required to build an evidence base that can provide more definitive estimates of its effectiveness. To assess the long-term effects of meditation, research should participate samples huge enough to identify empirical variability and follow up with attendees for 6 to 12 months. The practice of mindfulness and the reciprocal use of other treatments should be monitored on a regular basis. The intervention's characteristics, including the optimal dose, have yet to be determined conclusively. The studies must have carefully matched controls in order to detect the specific effects of an intervention. Smaller trials can be conducted to answer such questions. Other findings that were beyond the scope of this study may need to be discussed. CONSORT (Consolidated Standards of Reporting Trials) standards should be followed in future publications on RCTs of concern.

Further work on the impact of mindfulness on quality of life should also concentrate on a better understanding of whether meditation practice has a minimum frequency or length to be successful. Although recent studies have shown that attentiveness has a significant positive effect on quality of life, these effects appear to be small to medium and based on evidence of moderate guality at best. Enhancing treatment and control group definitions, identifying the effects of various components of complex treatments, and working toward common criteria for measuring therapeutic gain are all possible ways to advance quality of life research (24). AlthHead-to-head tests that compare carefulness interventions of the same category but with component or dose variations may be useful in determining the most effective elements of these interventions (14).

#### CONCLUSION

There has been an improvement in awareness and study in patients undergoing dialysis using mindfulnessbased treatments. The studies have varied in quality and the approaches have shown varied, but most have reported positive results on quality of life of mindfulness-based intervention. Considering the high burden on people receiving dialysis, we recommend more work to explore easy-to-use care-based approaches that may enhance the overall well-being of our patients in meeting the demands of life-changing therapy-treated chronic disease and improve the experience of dialysis. We, therefore, suggest moving forward, researching, and adopting mindfulnessbased intervention that may prove superior to drug interventions to enhance the quality of life.

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