



# The Effect of an Educational Intervention on Coping Mechanisms for Depression among Patients Undergoing Hemodialysis at the Buea Regional Hospital, Cameroon

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## Research Article

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## Abstract

**Background:** Depression frequently occurs among hemodialysis patients and it is associated with various adverse outcomes.

**Objective:** This study sought to evaluate the effect of an educational intervention on the coping mechanisms for depression among hemodialysis patients having depression.

**Methods:** This was a hospital based cross sectional interventional study which investigated the effect of education on the patients' knowledge and practice regarding coping mechanisms for depression. Purposive and consecutive convenient sampling methods were used to select the study site and enroll participants to the study respectively. The study was conducted in the Hemodialysis Center at the Buea Regional Hospital (BRH) in Fako Division, South West Region of Cameroon. The study participants were made up of 63 hemodialysis patients aged 21 years and above who met the inclusion criteria and gave their consent to participate in the study. The intervention was education on coping mechanisms for depression that was administered after a pretest. A semi-structured questionnaire made up of 10 questions was used to collect data on knowledge and practice of coping mechanisms for depression before and after the intervention to compare results. Each patient level of depression was noted. Patients with physical and cognitive impairment were excluded. Those who scored 7 and above were said to be knowledgeable and practiced depression coping mechanisms. Data was collected from May 13 to June 15, 2019, data collected was coded and entered into EPI and exported to SPSS version 23 for analysis.

**Results:** The majority (80.6%) of the participants knew and had used one or more of the depression coping mechanisms, but 41.8% of them did not know if it could manage depression effectively. Educating hemodialysis patients on depression coping mechanisms significantly decreased their levels of depression  $x^2 = 39.688$ ; ( $p < 0.00$ ).

**Conclusion:** Some patients undergoing hemodialysis were not knowledgeable on the coping mechanisms for depression and did not know if these could manage depression effectively. Therefore, education is vital in decreasing levels of depression amongst hemodialysis patients. This study was conducted in only one health facility hence, the results may not be generalized to the entire nation.

**Keywords:** Prevalence; Depression; Coping mechanisms; Education; Hemodialysis

**Abbreviations:** HD: Hemodialysis; ESKD: End Stage Kidney Disease; ESRD: End Stage Renal Disease; LOS: Length of Stay; BDI: Beck's Depression Inventory.

## Introduction

Psychiatric disorders are common in patients with chronic illnesses such as End Stage Kidney Disease (ESKD) and patients on hemodialysis (HD) and examples include anxiety and depression with an estimated range of 20 to 45% and 25 to 50% in HD patients, respectively [1]. Depression is a common mental disorder affecting more than 264 million people worldwide [2]. It is a leading cause of disability around the world and adds greatly to the global burden of disease. The effects of depression can be long-lasting or recurrent and can dramatically affect a person's ability to function and live a rewarding life [2]. Among end stage renal disease (ESRD) patients on hemodialysis, depression is one of the most common psychiatric disorders with higher prevalence than in the normal population [3].

The causes of depression include complex interactions between social, psychological and biological factors. Life events such as childhood adversity, loss and unemployment contribute to the development of depression [2]. It was reported that depression will be a leading cause of disease by 2020 [4]. Even though treatment and support for moderate and severe depression exist in low- and middle- income countries, they are underdeveloped or absent and WHO reports estimated that 76–85% of people suffering from mental disorders in these countries lack access to the treatment they need [5]. Thus, making it necessary for coping strategies for depression to be used to better manage depression.

According to reports from WHO response, depression is one of the priority conditions covered by WHO's mental health Gap Action Programme (mhGAP), as such, brief psychological intervention manuals for depression that may be delivered by lay workers have been developed [4]. There are more than 1.7 million patients currently on HD in about 28,500 dialysis units worldwide and its population of patients projected to be 2.0 million ten years back.

The total prevalence of CKD in Cameroon is unknown; however, recently the prevalence of depression amongst hemodialysis patients attending the Renal Clinic at the Buea Regional Hospital was estimated at 47.7% [6]. While in the West Region of Cameroon it was estimated to be 13.2%, and literature documents that more than 70% of patients with ESRD will be resident in low-income countries [7] percentages and means. **RESULTS:** among the patients undergoing hemodialysis, 21(52.5%). Therefore, there was a strong need to research on the coping mechanisms since mental factors may also cause mortality amongst this population of patients.

Depression being one of the most common complications of HD patients is associated with many adverse outcomes, such as lower performance status, increased fatigue, decreased physical activity, decreased quality of life, increased hospitalization risk and increased length of stay (LOS) among these patients [8]. Self-care education increases awareness of patients and maybe effective in improving the quality of life for HD patients with lower level of education and economic status as well as long duration of illness. It is also beneficial to those with poor adherence of diet and drugs, having overweight and edema, and other diseases such as hypertension or diabetes that aggravate depression condition in them [9].

It is worth noting that depressive symptoms are not usually included as a clinical parameter in the evaluation of hemodialysis patients hence, often go undetected and untreated among people with ESRD and CKD on maintenance dialysis. Results from a scoping review concluded that more intervention research is needed for depression treatment with ESRD patients [10]. Thus, we assessed the effect of education on the coping mechanisms for depression amongst HD patients since psychosocial interventions have been shown to decrease depression in various chronic diseases [11]. Education on the coping mechanisms for depression may ensure timely intervention and proper management of depression among patients on HD. This could go a long way to improve dialysis outcome, reduce depression, improved quality of life and in turn decreased mortality.

## Materials and Methods

This was a hospital-based cross-sectional interventional study conducted to investigate the effect of an educational intervention on the knowledge and practice of coping mechanisms for depression. The study was conducted in the HD Center at the RHB from June-August, 2020. The BRH is the only center in the South West Region of Cameroon rendering dialysis services to a population of about 1, 390,274 inhabitants. Nurses in the center who are mostly involved in rendering dialysis services to these patients, work in two shifts; morning (8am - 5pm) and evening (5pm - 8am).

The study population consisted of all patients of both sexes undergoing dialysis at the BRH HD center. The sample was 67 patients who have been diagnosed of kidney disease and have been on maintenance HD therapy for at least three months at the time data collection. Only patients on HD who were depressed according to their Beck's Depression Inventory (BDI) score of  $\geq 17$ , aged  $\geq 21$  years and gave their consent were included in the study. Their baseline values (Table 1) showed that 12 of them had normal depression, 14 had moderate depression, 23 had mild mood disturbances, 11 had borderline clinical depression and seven had severe

depression [6].

Depression	N (%)
Normal	12(17.9)
Mild mood disturbances	23(34.3)
Borderline clinical depression	11(16.4)
Moderate	14(20.9)
Severe depression	7(10.4)
<b>Total</b>	<b>67(99.9)</b>

**Table 1:** Participants Level of Depression before Educational Intervention.

The participants were enrolled using the consecutive convenience sampling technique (n=67). The intervention was health education on depression and its coping mechanisms which was delivered after a pretest. It is important to state that intervention was delivered to 63 participants 94%; since four of them refused to take part due to personal reasons. Data was collected on socio-demographic characteristics (age, occupation, religion, and support among others), knowledge and practices regarding coping mechanisms on depression using a semi structured questionnaire with both open and closed ended questions. The initial depression level for each participant was noted. The section for knowledge and practice on coping mechanisms on depression was scored on 10points. The patients who had seven points and above were termed knowledgeable (had sufficient knowledge) while those who scored below seven were termed not-knowledgeable (had insufficient knowledge) on depression coping mechanisms and practices.

The questionnaire was pretested to validate the study questions by administering 10 copies of the questionnaire to 10 HD patients who were not part of the study sample. Some questions were rephrased for clarity. Data was collected before and after the intervention, which was delivered through an interactive session conducted at the HD center. The patient-centered method of teaching was employed and the experiential teaching method was used by asking a few questions to determine the patients' prior knowledge and practices. Using flipcharts materials on definition, types of coping strategies and various practices were presented to the patients and after the session they were given handouts to enhance retention. The intervention was done for 90 minutes in two days; divided into four sessions of 20 minutes each; separated by a five minutes break. The participants were encouraged to practice the coping mechanisms individually as often as possible Four weeks later the post-test was administered and participants' levels of depression before and after the intervention were then compared.

Data collected was checked for completeness, grouped

and entered into EPI data and exported to SPSS Version 23 for analysis. Survey commands were entered into Microsoft excel and exported to SPSS version 23, for analysis. Statistical significance was set at 95% Confidence interval, with a P value <0.05. Comparisons between proportions were made using the Chi squared test. Also, association between depression and patients' knowledge and practice of coping mechanisms for depression was calculated at 95% CI linear regression. Results were presented on tables.

## Results

A total of 63 patients aged 21years and above participated in the intervention and completed 63 copies of the questionnaire thereby giving a response rate of 100%. Majority of the participants were males (64.2%), the age range 40-60 years (56.7%) was the most represented and majority were married (64.2%). Most of the study participants resided in Buea (53.7%), 90.4% were Christians, 43.3% were unemployed, while 64.2% acknowledged supported by their family members. About half of the study participants have had chronic kidney disease for between 1-5 years (55.2%), while majority have been on dialysis for between 2-5 years (44.8%) (Table 2).

Variables	Parameter	n (%)
Gender	Female	24 (35.8)
	Male	43 (64.2)
	<b>Total</b>	<b>67 (100.0)</b>
Age (years)	21-39	16 (23.9)
	40-60	38(56.7)
	>60	13 (19.4)
	<b>Total</b>	<b>67 (100.0)</b>
Source of support system	Family	43 (64.2)
	Self	20 (29.8)
	Others	4(6.6)
	<b>Total</b>	<b>67 (100.0)</b>
Marital status	Married	43 (64.2)
	Single	24 (35.8)
	<b>Total</b>	<b>67 (100.0)</b>
Employment status	Employed	28 (41.8)
	Unemployed	39 (43.3)
	<b>Total</b>	<b>67 (100.0)</b>
Duration of dialysis	<10years	65 (97.0)
	>10years	2 (3.0)
	<b>Total</b>	<b>67 (100.0)</b>

**Table 2:** Socio-demographic Characteristics of the Study Participants.

Concerning participants' knowledge on coping with depression, the results showed that majority of the participants had previously heard of depression coping mechanisms (86.6%), and 80.5% had previous knowledge of specific coping strategies. The most frequently mentioned strategies were thinking positively (74.1%), followed by the

doing things that makes me happy and meditation (46.3%) respectively. Relaxation was mentioned by 31.5%, while reaching out and getting connected (25.9%) and exercising (1.8%) were reported by the participants respectively (Table 3).

Variables		N (%)
Aware of depression coping mechanisms	Yes	58(86.6)
	No	9(13.4)
Knowledge on any coping Strategy	Yes	54(80.6)
	No	13(19.5)
Coping strategies	Reach out and get connected	14(25.9)
	Doing things that makes you feel good	25(46.3)
	Exercising	1(1.8)
		25(46.3)
	Meditating	17(31.5)
	Relaxation	40(74.1)
	Thinking positively	

**Table 3:** Knowledge of Depression Coping Mechanisms among Study Participants.

The majority of the participants had been depressed before (88.1%), and 80.6% had previously used depression coping strategies. The most frequently used strategy was thinking positively (61.1%), followed by doing things that makes one happy and meditation (27.8%) respectively, then

relaxation (14.8%), and reaching out and getting connected (3.7%). Most (75.9%) of the participants reported that the strategies they used were effective in relieving their depression levels (Table 4).

Variables		N (%)
Have you ever been depressed before	Yes	59(88.1)
	No	8(11.9)
Previous use of coping strategies	Yes	54(80.6)
	No	13(19.4)
Coping strategies	Reach out and get connected	2(3.7)
	Doing things that makes you feel good	15(27.8)
		15(27.8)
	Meditating	8(14.8)
	Relaxation	33(61.1)
	Thinking positively	
Was the strategy effective?	Yes	41(75.9)
	No	13(24.1)

**Table 4:** Practice of Depression Coping Mechanisms among Study Participants.

The participants who knew and had used coping mechanism for depression were 54 (80.6%), most of them

did not know whether coping mechanisms could efficiently manage depression (51.9%), 22 (40.7%) accepted while

only 4 (7.4%) reported that coping mechanisms cannot efficiently manage it. Majority of the participants reported

that they were willing to learn about coping mechanisms for depression (94.0%) (Table 5).

Variables		Frequency
Psychosocial coping mechanisms can efficiently manage depression	Yes	22(40.7)
	No	497.4
	Don't know	28(51.9)
Would like to learn about coping mechanisms for depression	Yes	63(94.0)
	No	4(6.0)

**Table 5:** Perceptions of Study Participants Regarding Depression Coping Mechanisms.

The results revealed that educating the participants on the coping mechanisms for depression significantly decreased their depression levels ( $X^2$ : 39.688, df: 10,  $p$ : <0.001). A total of 63 out of the 67 participants gave their consent to learn about coping mechanisms for depression (94.0%) Results of the educational intervention showed that, the number of participants in the normal level of depression significantly increased from 8 before intervention to 30

after the intervention. The number of participants with mild mood disturbances significantly reduced from 24 before the intervention to 17 after the educational intervention. The number of participants with borderline clinical depression, moderate depression and severe depression also significantly reduced from 11, 14 and 6 to 8, 1 and 0 respectively after the intervention (Table 6).

Depression Levels	Intervention		$X^2$	Df	P value
	Before	After			
Normal	8	34	39.688 <sup>a</sup>	10	0
Mild mood disturbances	24	17			
Borderline clinical depression	11	8			
Moderate depression	14	1			
Severe depression	6	0			

**Table 6:** Effect of Education on Coping Mechanisms on Depression Levels of Study Participants.

## Discussion

This study aimed at investigating the effect of an educational intervention on coping mechanism of depression among patients undergoing hemodialysis in the Buea Regional Hospital. Worthy of note is the fact that among end stage renal disease (ESRD) patients on hemodialysis, depression is one of the most common psychiatric disorders with higher prevalence than in the normal population [12]. Thus, this study was conducted to provide evidence on the use of coping mechanism to control depression and in turn reduce its prevalence among patients undergoing hemodialysis in the Buea Regional Hospital in particular and Cameroon as a whole.

The study has the following limitations; the intervention was done for only three months, however, the participants were able to understand and use the various coping mechanisms. Also, the follow-up time for the patients was short hence, we could not evaluate the participants' ability to

continue the use of the coping mechanisms. Furthermore, we conducted the study in only one health facility; hence, results obtained may not reflect the actual situation in the country. Therefore, a more robust study should be conducted for a longer period of time.

The study result revealed that the level of depression among the study participants with borderline clinical depression, moderate depression and severe depression reduced from 11, 8 and 6 to 8, 1 and 0 respectively. This result indicates that the educational intervention was effective and that the different coping mechanisms for depression were understood and practiced by study participants. Since the coping mechanisms are cost effective, it made it easy for them to practice conveniently after they were educated. In a systematic review and meta-analysis study conducted it was observed that there was a positive effect of psychological support, relaxation-based therapy, and psycho-educational intervention on depression, anxiety and quality of life of adults undergoing HD [13,14].

Also, our study results revealed that the number of study participants who were normal and not depressed increased to 34 after the educational intervention. There exist moderate certainty that psychosocial interventions decrease depressive and anxiety symptoms for hemodialysis patients when compared to usual care Barelo S, et al. [13] Faryabi, et al. [15] reported that the educational intervention based on the Lazarus and Folkman model for staffs was found to increase the use of problem-oriented coping mechanisms. This reduced the use of emotion-focused copings and increase the level of health in all aspects, especially in the mental aspect. In addition, the role of positive reappraisal to increase stress management skills and mental health were confirmed in their study. Also, our findings support findings reported by previous studies which showed that positive reappraisal coping strategies can help individuals to adapt to long and unpredictable periods of time [16,17]. Again, our study results are in line with another study which revealed that, higher levels of confrontation and positive reappraisal could improve mental health in individuals [18,19].

Furthermore, our study revealed that thinking positively was one of the coping mechanisms majority of our participants knew and implemented. This finding supports that of Hedayati, et al. where the authors reported an improvement in depressive symptoms in ESRD patients treated with non-pharmacological regimens alongside exercise therapy, and cognitive behavioral therapy [20,21]. A study revealed anxiety in 37.3% and depression in 45.3% of hemodialysis patients, who used the fatalistic approach as the most common coping strategy [22].

The results of our study revealed a decrease in the levels of depression among the hemodialysis patients after the educational intervention. This decrease could be explained by the fact that the hemodialysis patients were now knowledgeable of the coping mechanisms for depression and were putting them into practice. The study participants knew depression coping mechanisms but did not know if they could effectively use them to control depression. The educational intervention was effective to reduce the number of hemodialysis patients with depression. Thus, this could serve as enough evidence that education on the coping mechanisms for depression decreases level of depression among hemodialysis patients [23,24]. It is worth reiterating that depression has various consequences; it could increase the likelihood of cardiovascular disease, malnutrition, inflammatory response, and affects the outcome of hemodialysis patients [25].

## Conclusion

The study recapped the importance of psychological care for patients with hemodialysis, and made clear the

distress patients on hemodialysis go through. We found that some patients undergoing hemodialysis at the Buea Regional Hospital were not knowledgeable on the coping mechanisms for depression and did not know if it could manage depression effectively. The patients' education on the coping mechanisms for depression encouraged them to personally implement these practices and this greatly reduced the level of depression among them. This would in turn enhance better quality of life which could contribute in decreasing mortality among patients undergoing hemodialysis. Therefore, it is recommended that health care providers working directly with hemodialysis patients and nurses who are at the fore front of care for these patients should consider the psychological aspects of patients at every point in time when providing care. Education on the coping mechanisms of depression should be a routine practice in the hemodialysis center of Buea Regional Hospital in particular and other renal clinics in Cameroon.

## Consent

It is not applicable.

## Ethical Approval

The study was reviewed and received Ethical Clearance from the Institutional Review Board of the Faculty of Health Sciences, University of Buea.

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## Competing Interests

Authors have declared that no competing interests exist.

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