■Original Article

"Support of doctor" influence on hemodialysis patients' depression: Cooperation with doctors from a nursing perspective

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Abstract

From a nursing perspective, this study attempted to clarify the influence and effectiveness of doctors' support of hemodialysis patients suffering depression and to examine cooperative methods for prevention and improvement of such depression.

Targeting hemodialysis patients, we queried their basic attributes, health situation, health condition of family other than the situation of the recognition of support of depression and doctor with a paper questionnaire. We performed two-variable and multivariate analysis.

Results showed that support of a doctor affected hemodialysis patients' depression indirectly but had no direct influence. Instead, the factors that significantly affected hemodialysis patients' depression were bodily symptoms that the patient noticed. If improvement of physical symptom support of doctor is carried out, as for this, it may be said that depression state was result indicating having possibilities to go to lightness. Nurses evaluated hemodialysis patients' physical symptoms for appropriate prevention and improvement. And it spoke for thought and expectation of patient again, and results suggested the doctor's importance in improving curative effects on bodily symptoms by streaming down and cooperating.

Key Words: Support of doctor, Hemodialysis patients, Depression

1. Introduction

Hemodialysis patients quite easily become depressed [1-4]. In general, quality of life decreases when people suffer from depression, possibly shortening their lives[6-7], and hemodialysis patients are affected similarly. We investigated the association between hemodialysis patients' depression and nursing support, and the writer examined nursing care for depression, showing that health information support via nursing care was effective for improving hemodialysis patients' depression[8]. But what is the association between hemodialysis patients' depression and support from the doctor?

From a nursing perspective, this study clarifies the association between hemodialysis patients' depression and support from the doctor. It further examines effective methods of cooperation with the doctor for improving these patients' depression.

2. Operational definition of term "support of doctor"

As a construct of "Support of Healthcare Workers," we defined "support of doctor" as comprising three factors: expertise support, health information support, and emotional support[9].

3. Method

3.1 Study period, research method, and research object

We distributed questionnaire to 1,000 hemodialysis patients to live in the A city with the Kinki district by cooperation of hemodialysis patients society from September to October in 2016. Questionnaire was collected than 351/1,000 people (35.1% of recoveries) and finally got effective answer of 310 people when we excluded thing which no answer was included in one of depression scale, the support of doctor (31.0% of effective answer rates).

3.2 Investigation item

1) Basic attributes of participants

Gender, age, number of years in dialysis treatment, anamnesis.

2) Family environment

Presence of spouse, family members living together, support by family members

3) Health condition

We asked about 30 kinds of subjective symptoms[10], continuously ambulatory presence for comorbidities, difficulties in everyday life according to subjective symptoms, dialysis days, and fault dialysis days.

4) Depression

We tested participants for depression with the Patient Health Questionnaire-9 (PHQ-9, Japanese edition), which objectifies and assesses degree of depression[11]. "In PHQ-9 there is no depression" in 0-4 points of scores, as for slight depression in 5-9 points, as for mild to moderate depression 10-14 points, as for moderate to severe depression in 15-19 points, as for severe depression in 20-27 points. Because this study is intended to compare whether there is depression, two groups emerged—a no-depression group (0–4 points) and a depression group (5+ points). In this study, Cronbach's α coefficient was 0.87.

5) Support of doctor

We measured doctors' support by using the support scale of doctor[9], which is comprised of three factors nine items: (1) expertise support indicates "using specialized techniques and judgment as a doctor"; (2) health information support means providing health information as a doctor; and (3) emotional support means that the doctor considers and addresses patients' emotional state. About each three support "Strongly agree:six points" " Agree;five points" "Agree a little:Four points" "Neither agree nor disagree;three points" "Disagree a little;two points" " Disagree ; one point" of six phases, evaluate height of the recognition for support of doctor.Higher scores reflect better "support by a doctor." In this study, Cronbach's alphas of the support scale of a doctor were expertise support, 0.92; health information support, 0.91; and emotional support, 0.90.

4. Analysis method

4.1 Two-variable analysis of basic attributes, other allied factors, and depression

For the depression group and the no-depression group, we cross tabulated participants' basic attributes, each item of participants' health conditions, and family environment and then tested withPearson's χ2.

We then performed t-tests according to support of doctor scores and the depression and no-depression groups. Concerning

the three factors in support of doctor, we divided groups into high and low scores with the median for each support type and performed cross tabulation for the depression group and the no-depression group, next performing tests of Pearson's χ2.

4.2 Multivariate analysis with support of doctor and depression

We assumed a depression and a no-depression objective variable. We assumed support of doctor (expertise support, health information support, and emotional support) as an explanatoryvariable and chose 10 as a factor to analyze the following: gender, age, number of years in dialysis, anamnesis, continuously ambulatory presence for comorbidities, number of subjective symptoms, difficulties of everyday life on dialysis days, and non-dialysis days, family support, feelings of subjective health. Next, we performed logistic-regression analysis (EPV = 180/13=13.84).

In the depression purpose variable and, in the case of analysis, did group with reference category; we calculated the odds ratio (OR), 95% confidence interval (95% CI), and level of significance p value and jointly analyzed the explanation variable. In addition, we calculated the coefficient of correlation between explanation variables and examined collinearity characteristics.

In the analytical model, the variance inflation factor between variables was 1.053–3.063; there was no collinearity-related problem. Level of significance assumed for both sides was 5%. We used the statistical analysis software SPSS for Windows ver. 24.0. Because missing values vary according to variables in analysis, target numbers were different in every analysis.

5. Ethical considerations

When the paper questionnaire was distributed, we attached a document that included the following information: the study's purpose and protocol, participant anonymity protections, possible disadvantages to patients, the option to withdraw from the study at any time, and that results would be used only for the current study's purpose, professional journal publication, and presentation at a professional conference. In addition, patients confirmed their agreement to participate in the study by completing, and returning the questionnaire directly to the researcher. The study received approval by the Ethical Review Board of the Open University of Japan.

6. Results

6.1 Relations of basic attribute and the family situation and depression

Table 1 displays participants' basic attributes, the family environment, and relation with depression. Participants were 69.0 ± 10.0 years old and the number of mean dialysis years was 10.9 ± 8.6. The gender ratio was 6:4, men to women. The average age, as for this, there were not the present situation and gulf of dialysis patient at the end of 2014 of Japanese dialysis medical society at sex ratio. Participants without a spouse had a difficulty rating of 22.0%, those staying alone had 8.5%, and for the situation of family support, 16.4%. The mean depression score was 5.21 ± 5.47 points (0–23). In the no-depression group (0–4 points were more than 180 participants (58.1%). In the depression group (5+ points) were 130 participants (41.9%; Figure 1), in other words about 40% of participants were in a state of depression.

Concerning no-depression, basic attributes, and family situation, it was shown that in the participant's state of depression "it was more difficult to get support at the time of need" than for a person who "could get support from family at the time of need"; this tended to be significantly high (p = 0.011), but in other items, there was no-depression and no meaningful related factors. These things show even study[8] that the writer already performed.

6.2 Relations of health condition and depression

Table 2 on participants' health conditions shows the distribution of the number of subjective symptoms, ambulatory presence for comorbidities, kinds of subjective symptoms, feelings of subjective health, presence of difficulty in everyday life, and relation with depression (Figure 2). The average number of subjective symptoms was 4.6 ± 3.6, and 25 people (8.2%) without subjective symptoms. 28 people (9.2%) having 1 number of the subjective symptoms. And it was 53 people (17.4%) with subjective symptoms that we matched both with less than one. 125 people (41.0%) having 2-4 number of the subjective symptoms. 127 people (41.6%) with number of the subjective symptoms more than 5. Person visiting a hospital for treatment for comorbidities except dialysis continuously rose than half of the whole target person, but connection that was meaningful between thing and depression that visited a hospital for treatment for comorbidities was not seen.

On the other hand, for subjective symptoms, a meaningful connection was seen among all subjective symptoms and depression, except for low back pain. A tendency for the depression level to increase significantly was shown in participants with many subjective symptoms. A participant who felt that his/her subjective health was not good rose than 90%, and in a participant with feelings of low subjective health, depression levels rose significantly. About 30% felt difficulty in everyday life on dialysis days, and about half felt difficulty in everyday life on non-dialysis days. Moreover, participants were shown to hold significant feelings of strong depression in everyday life regardless of fault dialysis day or dialysis day. These things show even study[8] that the writer already performed.

6.3 Relations between support of doctor and depression

Table 3 displays high recognition for the three types of support of doctor and their relation with depression. Means of scores (perfect score: 18 points) were: expertise support, 13.5 ± 3.4 points; health information support, 12.0 ± 3.7 points; and emotional support, 13.2 ± 3.4 points. When "there was depression" and "there was no-depression" and saw difference of support score in group with group, "there was depression," and support score of group turned out "there was depression," and "there was no-depression" in support score of group, and more significantly than group low in expertise support (p < 0.001), health information support (p < 0.001), emotional support (p < 0.001), and the support. In addition, "there was depression," and "there was no-depression," and "there was depression," and, in the group, support score significantly turned out low with expertise support (p = 0.002), health information support (p < 0.001), emotional support (p < 0.001) by the Pearson's χ2 test to determine any difference in support score variance between groups.

6.4 Influence that the support of doctor provides for depression

After adjusting factors that mutually influenced the three types of support of doctor for hemodialysis patients' depression, we performed multivariate analysis for clarification (Table 4). However, analysis showed no connection between the three support types and depression, suggesting that the doctor's care was not directly related to patients' depression levels.

6.5 Influence that factors--other than support of doctor--provide for depression

Association between the explanation variable and depression, except for support of doctor, was first shown to be a factor in

0-4 points　no depression
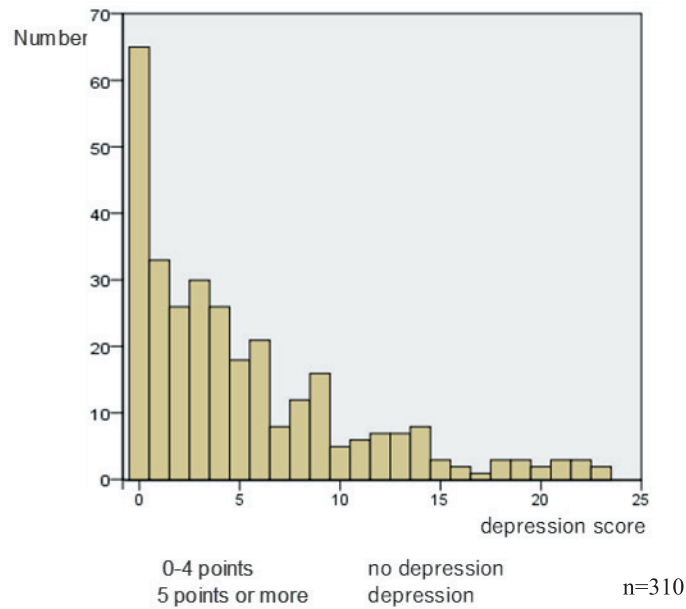5 points or more　depression　n=310

Figure 1. Distribution of depression score of hemodialysis patient

Table 1. Comparison basic attribute, family situation with no-depression and depression

	n	(%)	no-depression		depression		χ2-test
			n	(%)	n	(%)	
Sex	295						
Male	176	60.0	103	58.5	73	41.5	n.s.
Female	119	40.0	66	55.5	53	44.5	
Age	309						
< 59 year	40	12.9	26	65.0	14	35.0	
60 – 69 year	121	39.2	71	58.7	50	41.3	n.s.
70 – 79 year	107	34.6	57	53.3	50	46.7	
> 80 year	41	13.3	26	63.4	15	36.6	
Dialysis number of years	310						
< 1year	15	4.8	7	46.7	8	53.3	n.s.
1 – 14year	202	65.2	111	55.0	91	45.0	
> 15 year	93	30.0	62	66.7	31	33.3	
Anamnesis	308						
Diabetes	84	27.3	46	54.8	38	45.2	n.s.
non‑Diabetes	224	72.7	132	58.9	92	41.1	
Marital Status	309						
Married	241	78.0	136	56.4	105	43.6	n.s.
Unmarried	68	22.0	43	63.2	25	36.8	
Family	306						
together	280	91.5	162	57.9	118	42.1	n.s.
non-together	26	8.5	15	57.7	11	42.3	
Support from family	287						
Receive	240	83.6	145	60.4	95	39.6	p=0.011
Not receive	47	16.4	19	40.4	28	59.6	

n.s : No significant

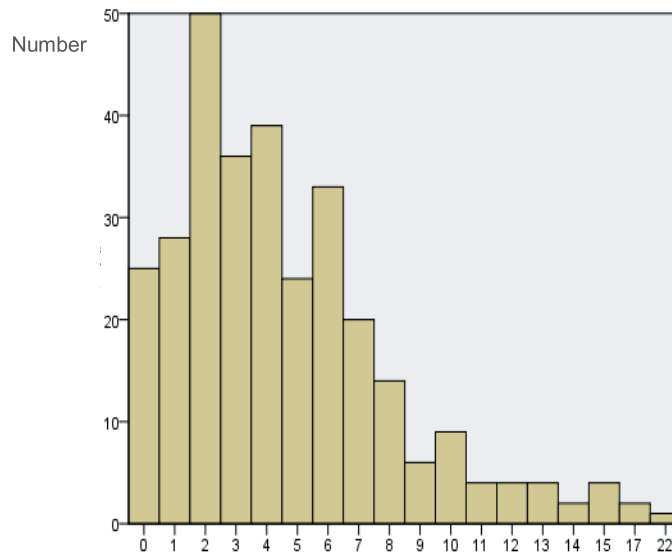χ2test : Comparison between no-depression and depression

Figure 2. Distribution of the number of the subjective symptoms

Table 2.　Comparison between health and no-depression/ depression

	n	(%)	no-depression		depression		χ2-test
			n	(%)	n	(%)	
Comorbidities	305						
Yes	161	52.8	89	55.3	72	44.7	n.s.
No	144	47.2	89	61.8	55	38.2	
Fatigue	305						
Yes	75	24.6	21	28.0	54	72.0	p<0.001
No	230	75.4	155	67.4	75	32.6	
Diarrhea, constipation	305						
Yes	92	30.2	45	48.9	47	51.1	p=0.041
No	213	69.8	131	61.5	82	38.5	
Itching	305						
Yes	107	35.1	50	46.7	57	53.3	p=0.004
No	198	64.9	126	63.6	72	36.4	
Stiff shoulder	305						
Yes	97	31.8	43	44.3	54	55.7	p=0.001
No	208	68.2	133	63.9	75	36.1	
Low back pain	305						
Yes	100	32.8	52	52.0	48	48.0	n.s.
No	205	67.2	124	60.5	81	39.5	
Numbness	305						
Yes	75	24.6	28	37.3	47	62.7	p<0.001
No	230	75.4	148	64.3	82	35.7	
Subjective health	309						
Healthy	26	8.4	24	92.3	2	7.7	p<0.001
Not healthy	283	91.6	156	55.1	127	44.9	
Obstacle in life(Dialysis day）	301						
Trouble	155	51.5	62	40.0	93	60.0	p<0.001
Not trouble	146	48.5	112	76.7	34	23.3	
Obstacle in life(Non-dialysis day）	300						
Trouble	94	31.3	29	30.9	65	69.1	p<0.001
Not trouble	206	68.7	144	69.9	62	30.1	

n.s : No significant
χ2test : Comparison between no-depression and depression

Table 3.　Comparison between support of doctor and no-depression/ depression

	n	（％）	Mean±SD (Minimum-Max)	Median	No-depression (n=180) Mean±SD	n	（％）	Depression (n=130) Mean±SD	n	（％）	t-test	χ2-test
Expertise support	310		13.5±3.4(4-18)	14	14.2±3.2			12.6±3.5				
High evaluation	177	57.1				116	65.5		61	34.5	p<0.001	p=0.002
Low evaluation	133	42.9				64	48.1		69	51.9		
Health information support	310		12.0±3.7(3-18)	12	12.9±3.4			10.8±3.7				
High evaluation	176	56.8				120	68.2		56	31.8	p<0.001	p<0.001
Low evaluation	134	43.2				60	44.8		74	55.2		
Emotional support	310		13.2±3.4(3-18)	13	13.9±3.2			12.1±3.5				
High evaluation	179	57.7				121	67.6		58	32.4	p<0.001	p<0.001
Low evaluation	131	42.3				59	45.0		72	55.0		

T-test : Comparison between no-depression and depression
χ2test : Comparison between no-depression and depression

Table 4.　Logistic-regression analysis to relate to no-depression of support of doctor

	OR　95%CI	P value
Expertise support		
Low evaluation	1.0（ref.）	
High evaluation	1.02（0.38 - 2.70）	n.s.
Emotional support		
Low evaluation	1.0（ref.）	
High evaluation	2.57（0.95 - 6.93）	n.s.
Health information support		
Low evaluation	1.0（ref.）	
High evaluation	1.29（0.58 - 2.86）	n.s.
Sex		
male	1.0（ref.）	
Female	0.85（0.44 - 1.65）	n.s.
Age		
< 80 year	1.0（ref.）	
70 -79 year	0.94（0.26 - 3.44）	n.s.
60 − 69 year	1.21（0.43 - 3.40）	n.s.
> 59 year	1.06（0.38 - 2.91）	n.s.
Dialysis number of years		
> 15 year	1.0（ref.）	
1 − 14year	0.27（0.07 - 1.11）	n.s.
< 1year	0.40（0.19 - 0.83）	p=0.014
Support from family		
Not receive	1.0（ref.）	
Receive	2.39（0.99 - 5.75）	n.s
Subjective symptoms		
< 5	1.0（ref.）	
2 - 4	2.37（1.20 - 4.66）	p=0.013
> 1	9.34（2.72 - 32.03）	p<0.001
Obstacle in life(Dialysis day）		
Trouble	1.0（ref.）	
Not trouble	1.55（0.70 - 3.44）	n.s.
Obstacle in life(Not Dialysis day）		
Trouble	1.0（ref.）	
Not trouble	2.69（1.17 - 6.18）	p=0.019
Subjective health		
Not healthy	1.0（ref.）	
Healthy	4.62（0.85 - 25.09）	n.s
＜　Conformity degree＞		
Nagelkerke R2	0.39	
Cox-Snell R2	0.29	

ref. : reference category　　n.s : No significant　　　　　　　　　　n=310

＊We control in underlying disease (n.s), continuously ambulatory presence (n.s.) for comorbidities

conjunction with intentionality if depression in there being the number of subjective symptoms five or more. In comparison with participants with less than four subjective symptoms, in particular, for the participant with five or more subjective symptoms, a depression level two times greater was suggested (OR: 2.37, 95% CI: 1.20–4.66, p = 0.013). The possibility that the depression level was about 9 times higher for patients with five or more symptoms than for patients with one subjective symptom was suggested (OR: 9.34, 95% CI: 2.72–32.03, p < 0.001). As for participants who had everyday life difficulties on non-dialysis days, the possibility was suggested that the depression level became about twice as high, in comparison with participants with very little difficulty (OR: 2.69, 95% CI: 1.17–6.18, p = 0.019).

7. Discussion

For the influence on hemodialysis patients' depression from the support of a doctor, we analyzed with a multifaceted approach, including two-variable factor analysis in conjunction with hemodialysis patients' depression, commencing with multivariate analysis to examine methods of cooperation with the doctor for prevention and improvement of hemodialysis patients' depression from a nursing viewpoint. As a result, support of doctor was shown not to influence depression directly, but to influence it indirectly. On the other hand, subjective symptoms noticed by the patient were shown to significantly affect depression of hemodialysis patients, even study that the writers performed before[8]. In the precedent study on hemodialysis patient, subjective symptom as risk factor of depression is shown by a large number of studies[5,8,13-14].This result indicated the possibility that the depressive state might lighten if subjective symptoms' improvement via the support of the doctor is implemented. A problem for further study is improvement of subjective symptoms that result from complications of dialysis therapy makes any difference in hemodialysis patients' depression. However, there is not being wrong saying that it is complete recovery, healing of illness to expect of doctor whom patient entrusts with own life most. And expectation for hemodialysis patient that complete recovery is not anticipated is reduction of pain associated with disease and is liberation from fatigue to come from dialysis, and heart will not be exaggeration even if body is in tranquility with living. If such a situation does not improve, even with offers of support, of course, a patient's feelings sink.

This result showed that the doctor's support was not a direct influence on patient depression. Despite this, circumstances of kidney disease treatment prevents a doctor's meeting well the expectations of a dialysis patient. However, this also suggests the importance of cooperation among doctor, nurse, and patient, along with the understanding that the doctor needs to raise, as much as possible, curative effects on the patient's bodily symptoms. Furthermore, the doctor and nurse need to cooperate for prevention and improvement of depression in hemodialysis patients. Therefore, the first step is to evaluate the patient's physical symptoms appropriately. In this process, the nurse facilitates communication of those physical symptoms to the doctor, so that if the nurse can accurately and appropriately express the patient's thoughts and expectations, the doctor can properly provide daily medical treatment (improvement of emotional support), adds convincing explanations of patient's questions (improvement of health information support), and will likely help the patient by providing reliable specialized knowledge and techniques (improvement of expertise support).

On the other hand, in hemodialysis medical care, medical service fees for artificial kidney treatment have been devaluated, a doctor's ability to meet patient expectations is reduced,[12] only a few doctors manage a large number of patients, and doctor-patient contact time is thus necessarily shortened. In other words, high quality treatment by doctors is becoming more and more difficult in an environment with such limitations. Offer of high hemodialysis medical care of curative effect that good communication between doctor - patients is established if the doctor side shows faithfulness and posture that is going to participate positively, and patient based on relationship of mutual trust expects will be enabled. It is important that we aim at the role of such hemodialysis medical care. Therefore, nurse adjusting so that evaluate state of patient appropriately to realize it, and medical care that patient demands from doctor during the consultation hours that stream down, and are short provides thought of patient with improvement of subjective symptom of patient deferred; it may be said that is connected in contributing to the prevention, improvement of depression of patient when is. In addition, as support of nurse to depression of hemodialysis patient, knowledge that health reporting by nurse is effective is provided[8]. Therefore at first patient manages by oneself appropriately, and it may be said that it is important role as nurse to give information to prevent appearance of subjective symptoms in the cooperation with doctor for depression so that it is spoken.

8. Limitations

This study stated that the greatest cause of depression in hemodialysis patients was physical symptoms. However, reverse causation must also be considered; perhaps depression causes

some physical symptoms. In addition, we measured depression using the PHQ-9 (Japanese edition) recommended as an evaluation scale for patients with physical disease. However, this study cannot confirm that similar results would be provided by other depression scales. In this study, the physical symptoms are the number of subjective symptoms and bodily symptoms at the level of causing difficulty in everyday life. This cannot be fully considered until the kind of subjective symptoms, disease severity, and their relations to depression are combined. Therefore, repeating examination of the factors mentioned above is necessary the further to generalize this study's results.

9. Conclusion

Although the support of a doctor affected hemodialysis patients' depression indirectly, it had no direct influence. Instead, factors that significantly affected hemodialysis patients' depression were bodily symptoms that the patient noticed. If improvement of physical symptom with treatment of doctor is carried out, as for this, it may be said that depression state was result indicating having possibilities to go to lightness. Nurse evaluated physical symptom of patient for the prevention, improvement of depression of hemodialysis patient appropriately, and it was suggested that it was important we spoke for thought and expectation of patient again and told doctor and did, and to raise curative effect for body symptom in cooperation with doctor.

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