

## Accuracy of nursing diagnosis “readiness for enhanced hope” in patients with chronic kidney disease



*Acurácia do diagnóstico de enfermagem “disposição para melhora da esperança” em pacientes renais crônicos*

*Precisión del diagnóstico de enfermería “disposición para una mejor esperanza” en pacientes renales crónicos*

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### How to cite this article:

Silva RA, Melo GAA, Caetano JA, Lopes MVO, Butcher HK, Silva VM. Accuracy of nursing diagnosis “readiness for enhanced hope” in patients with chronic kidney disease. Rev Gaúcha Enferm. 2017;38(2):e65768. doi: <http://dx.doi.org/10.1590/1983-1447.2017.02.65768>.

doi: <http://dx.doi.org/10.1590/1983-1447.2017.02.65768>

### ABSTRACT

**Objective:** To analyse the accuracy of the nursing diagnosis readiness for enhanced hope in patients with chronic kidney disease.

**Method:** This is a cross-sectional study with 62 patients in the haemodialysis clinic conducted from August to November 2015. The Herth Hope Scale was used to create definitions of the defining characteristics of the North American Nursing Diagnosis Association International. We analysed the measures of sensitivity, specificity, predictive value, likelihood ratio, and odds ratio of the defining characteristics of the diagnosis.

**Results:** Of the characteristics, 82.22% presented the diagnosis. The defining characteristics “Expresses the desire to enhance congruency of expectations with desires” and “Expresses the desire to enhance problem solving to meet goals” increased the chance of having the diagnosis by eleven and five, respectively.

**Conclusion:** The characteristics, “Expresses desire to enhance congruency of expectations with desires” and “Expresses desire to enhance problem solving to meet goals” had good accuracy measures.

**Keywords:** Hope. Renal insufficiency, chronic. Nursing diagnosis Validation studies. Data accuracy.

### RESUMO

**Objetivo:** Analisar a acurácia do diagnóstico “Disposição para melhora da Esperança” em pacientes renais crônicos.

**Método:** Estudo transversal com 62 pacientes em clínica de hemodiálise entre agosto a novembro de 2015. Utilizou-se a Escala de Esperança de Herth para a construção das definições das características definidoras da *North American Nursing Diagnosis Association International*. Analisaram-se medidas de sensibilidade, especificidade, valor preditivo, razão de verossimilhança e *odds ratio* das características definidoras do diagnóstico.

**Resultados:** 82,22% apresentaram o diagnóstico. Verificou-se que as características definidoras “Expressa desejo de intensificar a coerência entre expectativas e desejos” e “Expressa o desejo de reforçar a resolução de problemas para alcançar as metas” aumentou em onze e cinco vezes, respectivamente, a chance de possuírem o diagnóstico.

**Conclusão:** “Expressa desejo de intensificar a coerência entre expectativas e desejos” e “Expressa o desejo de reforçar a resolução de problemas para alcançar as metas” apresentaram boas medidas de acurácia.

**Palavras-chave:** Esperança. Insuficiência renal crônica. Diagnóstico de enfermagem. Estudos de validação. Confiabilidade dos dados.

### RESUMEN

**Objetivo:** evaluar la precisión diagnóstica para mejorar la prestación de la Esperanza en pacientes con insuficiencia renal crónica.

**Método:** Estudio transversal de 62 pacientes sometidos a diálisis clínica entre agosto y noviembre de 2015. Se utilizó la Escala de Esperanza de Herth para la construcción de las definiciones de las características que definen la *North American Nursing Diagnosis Association International*. Medidas analizadas de sensibilidad, especificidad, valor predictivo, la razón de verosimilitud y la razón de probabilidad de las características definidoras del diagnóstico.

**Resultados:** El 82.22% fue diagnosticado. Se encontró que las características que definen “expresa voluntad de reforzar la coherencia entre las expectativas y los deseos” y “expresa el deseo de mejorar la resolución de problemas para alcanzar los objetivos” aumentó en once y en cinco veces, respectivamente, la probabilidad de tener el diagnóstico.

**Conclusión:** “Expresando la voluntad de reforzar la coherencia entre las expectativas y los deseos” y “expresa el deseo de mejorar la resolución de problemas para alcanzar los objetivos”, mostró buenas medidas de precisión.

**Palabras clave:** Esperanza. Insuficiencia renal crónica. Diagnóstico de enfermería. Estudios de validación. Exactitud de los datos.

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## ■ INTRODUCTION

Chronic kidney disease is considered a public health problem in Brazil in view of the high morbidity and mortality rates of this disease and the high cost involved in the treatment. An increasing number of chronic kidney patients must undergo dialysis treatment. In 2010, there were 49,077 chronic kidney patients and, in 2014, the number jumped to 112,004<sup>(1)</sup>.

This exponentially growing disease and its effects on the personal and professional lives of sufferers, the complex therapy regimes involved, and the significant changes patients must make to their daily activities led to the creation of adaptation mechanisms or behaviour to cope with the disease and/or dialysis that proved effective for the biological, mental, and spiritual wellness of patients. One of these strategies identified by chronic kidney patients to cope with the disease and/or treatment is hope.

Hope drives individuals to act, move, achieve goals, and reach their objectives regarding treatment. Although hope does not have the power to heal, it encourages patients to continue fighting and pursue a better quality of life<sup>(2)</sup>.

During the care process, nephrology nurses identified that most chronic kidney patients in dialysis treatment have a pattern of expectations and desires to boost their own energy and wellness that can be enhanced. In the taxonomy of the North American Nursing Diagnosis Association International (NANDA-I, Inc.) this pattern is defined as Readiness for enhanced hope (00185).

This diagnosis was proposed by the North American nurses Margaret Lunney, Roberta Cavendish, Barbara Kraynyak Luise, and Kathryn Richardson, and included in NANDA-I in 2006<sup>(3)</sup>. It is a nursing diagnosis to promote health included in the domain Life Principles. The nursing diagnosis Readiness for enhanced hope has two spheres: generalised and particularised. In the first sphere, generalised hope, there is a future, albeit uncertain benefit. In the second sphere, particularised hope, there is a particular objective<sup>(4)</sup>.

In a study conducted with a support group for women who had undergone a mastectomy, it was found that 80% had the nursing diagnosis Readiness for enhanced hope. It was also observed that nursing interventions targeted at this reply seek to strengthen spiritual support and promote hope<sup>(5)</sup>. With regard to studies, there is a gap in national and international scientific production on the diagnosis Readiness for enhanced hope in chronic kidney patients in dialysis treatment.

This diagnosis consists of eight defining characteristics, namely: "Expresses desire to enhance ability to es-

tablish achievable goals"; "Expresses desire to enhance congruency of expectations with desires"; "Expresses desire to enhance belief in possibilities"; "Expresses desire to enhance hope"; "Expresses desire to enhance spirituality"; "Expresses desire to enhance interconnectedness with others"; "Expresses desire to enhance problem solving to meet goals"; and "Expresses desire to enhance sense of meaning to life"<sup>(3)</sup>.

Studies indicate that a single clinical data is not sufficient to reach a diagnosis. Therefore, studies of diagnostic accuracy are crucial to identify a set of defining characteristics and assess the specific relationship of these indicators with the most plausible hypotheses for specific contexts of health<sup>(6)</sup>.

Studies of the accuracy of nursing diagnoses are paramount for an adequate diagnostic inference. Thus, when nurses are aware of the clinical indicators needed to better predict a given diagnosis, they can select and target the necessary interventions more accurately and achieve the established nursing goals or outcomes<sup>(7)</sup>.

Therefore, it is essential to study the accuracy of diagnoses and the clinical judgment and diagnostic accuracy measurements used to define the degree of relevance, specificity, and consistency of clinical indicators. To enhance hope, nephrology nurses must know the predictive clinical indicators of the diagnosis of interest and plan care based on interventions that reinforce results and achievable goals effectively and immediately for the medical condition<sup>(8)</sup>.

The guiding question of the study was, What is the accuracy of the nursing diagnosis Readiness for enhanced hope in patients with chronic kidney disease? Thus, the objective of this study was to analyse the accuracy of the nursing diagnosis Readiness for enhanced hope in patients with chronic kidney disease.

## ■ METHODS

This is a cross-sectional study conducted with patients with chronic kidney failure undergoing dialysis treatment at a private clinic partnered with the Unified Health System in the city of Patos, Paraíba, Brazil.

To participate in the study, the patients with chronic kidney disease had to be over 18 years of age, registered and monitored by the nephrology unit from August to November 2015, and have the cognitive ability to participate in the research, verified by symptom assessment. During this period, 62 patients met the criteria and were selected to participate in the work. We opted not to include patients with hearing loss, with less than six months of treatment, or patients who were haemodynamically unstable.

The data were collected through interviews during the dialysis sessions, which last from three to four hours.

The Herth Hope Scale was used to identify the defining characteristics proposed by NANDA-I. Each characteristic was correlated with a statement of the scale, except “I feel all alone”, “I am scared about the future”, “I have deep inner strength”, and “I believe each day has potential” since they are considered contrary to the construct the Herth Hope Scale seeks to measure.

Of the twelve statements in the Herth Hope Scale, we selected eight with the greatest correlation with the NANDA-I characteristics for the diagnosis of interest (Chart 1). This scale has already been culturally adapted<sup>(9)</sup> and has proven reliability in studies<sup>(10-12)</sup> to assess the level of hope of patients with chronic kidney failure.

The Herth Hope Scale consists of 12 items based on a four-point Likert scale. The options are “completely agree”, “agree”, “disagree” and “completely disagree”. In this scale, “completely disagree” scores one point and “completely agree” scores four points. The total score ranges from 12 to 48, and the higher the score, the higher the level of hope.

The defining characteristics were considered present when the respondents agreed and completely agreed with the statement of the Herth Hope Scale.

In addition to applying the Herth Hope Scale, a questionnaire was used to collect data on identification, current medical conditions, diseases, dialysis treatment time, and type of vascular access for haemodialysis of the patients. Based on recommendations to assess diagnostic accuracy<sup>(6)</sup>, we analysed the results according to the steps of diagnostic reasoning to verify the presence of the diagnosis of interest and its defining characteristics.

We used the median of 36 points to determine the presence of nursing diagnosis Readiness for enhanced hope, as used in most studies with patients with chronic condition similar to those of this study<sup>(9-10)</sup>.

Data were analysed with software R version 2.12. The sociodemographic data, current medical conditions, diseases, dialysis treatment time, kind of vascular access for dialysis, and responses to the defining characteristics of interest were considered independent variables, while the studied nursing diagnosis was considered the outcome variable, according to data of the final scale score.

The results were presented in tables, and the Kolmogorov-Smirnov test was used to verify normality of the ordinal data. The data were subjected to descriptive analysis with percentages and measures of central tendency and dispersion. In the inferential analysis, the Chi-square test was applied to verify the association between the variables, or the Fisher test when the expected frequencies were lower than five.

To estimate the magnitude of the effect, we calculated the prevalence ratios and their confidence intervals of 95%. The difference of average and median were assessed using the t-test and Mann-Whitney test, respectively. Measures of sensitivity, specificity, predictive value, likelihood ratio and diagnostic odds ratio of the defining characteristics of the diagnosis of interest were assessed for accuracy. The cutoff point was defined as 60% since the indicators contained in this diagnosis are psychosocial responses considered common in patients with chronic kidney disease. The level of significance for the statistical inferences was established at  $p < 0.05$ .

Sensitivity is the proportion of subjects with the nursing diagnosis for which the defining characteristic is present.

**Chart 1** – Analogy between the defining characteristics of the nursing diagnosis Readiness for enhanced hope and Herth Hope Scale

Defining characteristics	Items in the Herth Hope Scale
Expresses desire to enhance ability to set achievable goals	I have short and long-term plans
Expresses desire to enhance congruency of expectations with desires	I have a positive outlook on life
Expresses desire to enhance belief in possibilities	I can see possibilities in the midst of difficulties
Expresses desire to enhance hope	I recall happy and joyful times
Expresses desire to enhance spirituality	I have faith that comforts
Expresses desire to enhance interconnectedness with others	I can give and receive caring/love
Expresses desire to enhance problem solving to meet goals	I have a sense of direction
Expresses desire to enhance sense of meaning to life	I feel like my life has value and worth

Source: Built by the study authors, 2015.

Specificity is the proportion of subjects without the nursing diagnosis for which the defining characteristic is absent. Positive likelihood ratio and negative likelihood ratio express how many times the presence/absence of a clinical indicator in people with the diagnosis is more (less) likely to be identified, compared with those without the diagnosis.

The research met the ethical principles of national and international studies, and was approved by the research ethics committee, protocol #1.113.271/2015.

## ■ RESULTS

The average dialysis treatment time of the 62 patients was 5.2 years. Most of the patients were men (51.6%), Catholic (72.6%), and between 41 and 60 years of age (average = 50 years). Of these patients, 46.8% reported being white with an average schooling time of 7.6 years (ranging from 0 to 19 years). In relation to work, 51.6% were active and 88.7% had an income of up to one minimum wage. As for marital status, 53.2% had a stable companion and 45.2% had a companion during the dialysis sessions.

The defining characteristics with a prevalence of over 70% were “Expresses desire to enhance spirituality”; “Expresses desire to enhance sense of meaning to life”; “Expresses desire to enhance interconnectedness with others”; “Expresses desire to enhance hope”; “Expresses desire to enhance belief in possibilities”; “Expresses desire to enhance congruency of expectations with desires”; and “Expresses desire to enhance problem solving to meet goals” (Table 1). The nursing diagnosis Readiness for enhanced hope was identified in 82.22% of patients with chronic kidney disease in dialysis.

The defining characteristics that had a statistical significance with Readiness for enhanced hope were “Expresses desire to enhance ability to set achievable goals” ( $p = 0.021$ ); “Expresses desire to enhance congruency of expectations with desires” ( $p < 0.001$ ); “Expresses desire to enhance spirituality” ( $p = 0.030$ ); “Expresses desire to enhance problem solving to meet goals” ( $p = 0.010$ ); and “Expresses desire to enhance sense of meaning to life” ( $p = 0.030$ ) (Table 2).

With respect to the diagnostic accuracy measurements of the defining characteristics of the nursing diagnosis of interest, it was noted that all the indicators showed good measurements of sensitivity. In terms of specificity, between the characteristics with more than 60%, “Expresses desire to enhance congruency of expectations with desires” obtained 63.64% (Table 3).

The best likelihood ratio for Readiness for enhanced hope was the defining characteristic “Expresses desire to enhance congruency of expectations with desires” (2.37), followed by “Expresses desire to enhance spirituality” (1.100), “Expresses desire to enhance problem solving to meet goals” (1.812), and “Expresses desire to enhance sense of meaning to life” (1.100). The defining characteristics “Expresses desire to enhance congruency of expectations with desires” and “Expresses desire to enhance problem solving to meet goals” increased the chance of individuals having a nursing diagnosis when these characteristics are present by eleven and five, respectively (table 3).

## ■ DISCUSSION

The sociodemographic profile of the sample was corroborated in studies conducted in other Brazilian states, in

**Table 1** – Prevalence of defining characteristics and nursing diagnosis Readiness for enhanced hope in patient with chronic kidney disease in dialysis treatment (N = 62). Patos, Paraíba, Brazil, 2016

Defining characteristics	N	%
Expresses desire to enhance spirituality	61	98.3
Expresses desire to enhance sense of meaning to life	61	98.3
Expresses desire to enhance hope	60	96.7
Expresses desire to enhance interconnectedness with others	60	96.7
Expresses desire to enhance belief in possibilities	58	93.5
Expresses desire to enhance congruency of expectations with desires	48	77.4
Expresses desire to enhance problem solving to meet goals	47	75.8
Expresses desire to enhance ability to set achievable goals	41	66.1
<b>Total</b>	<b>62</b>	<b>100</b>

Source: Research data, 2016.

which the profile was mostly men (52.6%), from 23 to 59 years of age, schooling between 1 and 9 years, white, with stable partners, and Catholic. In terms of employment, this study differs from the others since most of the participants were active (51.6%). Work is important for the professional self-realisation of people and to maintain financial order in the family<sup>(10)</sup>.

Although this clinic had predominantly young users, they had been in treatment for more time than in another study, in which the dialysis time varied from 26 and 42 months.

In a study conducted in the city of Fortaleza, Ceará, Brazil, it was found that 80% of patients with chronic kidney

disease monitored at a private clinic presented the diagnosis Readiness for enhanced hope. Of the defining characteristics used for diagnostic inference, it was observed that “Expresses desire to enhance problem solving to meet goals” and “Expresses desire to enhance belief in possibilities had the highest prevalence”<sup>(11)</sup>. The defining characteristics in this research had similar percentages to those of other studies. It is noted that the patients with chronic kidney disease expressed desires and expectations by mobilising energy for their own benefit in search of a better quality of life.

The defining characteristic “Expresses desire to enhance spirituality” is related to the coping strategies adopted by

**Table 2** – Ratio between the nursing diagnosis Readiness for enhanced hope and its defining characteristics in patients with chronic kidney disease in dialysis (N = 62). Patos, Paraíba, Brazil, 2016

Defining characteristics	Readiness for enhanced hope		P
	Yes	No	
<b>Expresses desire to enhance ability to set achievable goals</b>			
Present	37	4	0.021
Absent	14	7	
<b>Expresses desire to enhance congruency of expectations with desires</b>			
Present	44	4	< 0.001
Absent	7	7	
<b>Expresses desire to enhance belief in possibilities</b>			
Present	48	10	0.694
Absent	3	1	
<b>Expresses desire to enhance hope</b>			
Present	49	11	0.504
Absent	2	0	
<b>Expresses desire to enhance spirituality</b>			
Present	51	10	0.030
Absent	0	1	
<b>Expresses desire to enhance interconnectedness with others</b>			
Present	49	11	0.504
Absent	2	0	
<b>Expresses desire to enhance problem solving to meet goals</b>			
Present	42	5	0.010
Absent	9	6	
<b>Expresses desire to enhance sense of meaning to life</b>			
Present	51	10	
Absent	0	1	

Source: Research data, 2016.

\*\* Fisher's exact Test.

means of faith. Spirituality is defined as the effort to connect with oneself, connect with others and nature, and the link with a transcendent being, that is, it is not directly related to practicing a religion<sup>(12)</sup>. To feel spiritually well is considered an indicator, in which people deal with challenges, and plays an equal or greater role in health outcomes than the individual's own spirituality<sup>(13)</sup>.

Studies indicate that patients with chronic kidney disease can enhance spirituality religiously or existentially, thereby increasing the purpose of life. Spirituality has an effect on the way people cope by controlling the stress of the disease, regulating mental health, and improving quality of life<sup>(14)</sup>. In a study conducted in Iran<sup>(14)</sup>, it was found that the feeling of belonging to a sublime being and having the support of God helps religious people minimise stress when confronted with distressing life events, and better adapt physically, mentally, socially and spiritually to these events.

The desire to enhance the feeling of purpose in life is highlighted among patients of chronic kidney disease because it is related to the worth and usefulness individuals believe they have toward themselves and others.

The desire to enhance the sense of purpose in life is related to existentialism, which is the sense people give to their lives, the value life has, and the goal of life<sup>(15)</sup>. In pa-

tients with chronic kidney disease, this feeling is extremely necessary since it projects and directs life goals based on the belief that the future is more important than the past, required for personal growth and positive relationships during the years of recovery, such as those created in the dialysis sessions with the multidisciplinary team and with other patients.

The desire to enhance the sense of meaning to life is considered elemental for increasing interconnection with others. In this study, this characteristic obtained a prevalence of 96.7% in the population studied. Social support is a critical resource, and the participation of the family helps patient better accept their disease and treatment<sup>(16)</sup>.

Emotional support affects the health of people in different ways, and in the support network of family, friends and companions it frequently improves the physical and mental condition and mood of these patients<sup>(17)</sup>. Although this characteristic did not have a statistically significant association with the diagnosis of interest, it is undeniable that the social support offered to patients with chronic kidney disease and how they perceive this support are fundamental for the creation of strategies that maintain and preserve quality of life, and mitigate suffering in the face of a disease that weakens patients and makes them so dependent<sup>(18)</sup>.

**Table 3** – Measurement of diagnostic accuracy for the defining characteristics of the nursing diagnosis Readiness for enhanced hope in patients with chronic kidney disease in dialysis (N = 62). Patos, Paraíba, Brazil, 2016

Defining characteristics	S	E	PLR	NLR	DOR
Expresses desire to enhance ability to set achievable goals	78.69	9.09	0.866 (0.689 – 1.087)	2.34 (0.34 – 16.15)	0.369 (0.043 – 3.15)
Expresses desire to enhance congruency of expectations with desires	86.27	63.64	2.37 (1.077 – 5.224)	0.216 (0.009 – 0.49)	11.00 (2.54 – 47.58)
Expresses desire to enhance belief in possibilities	78.69	9.09	0.866 (0.689 – 1.087)	2.34 (0.34 – 16.15)	0.369 (0.043 – 3.15)
Expresses desire to enhance hope	96.08	0.00	0.961 (0.90 – 1.016)	-	0.000
Expresses desire to enhance spirituality	100	9.09	1.100 (0.913 – 1.326)	-	0.000
Expresses desire to enhance interconnectedness with others	96.08	0.00	0.961 (0.90 – 1.016)	-	0.000
Expresses desire to enhance problem solving to meet goals	82.35	54.55	1.812 (0.937 – 3.54)	0.324 (0.14 – 0.72)	5.6 (1.39 – 22.4)
Expresses desire to enhance sense of meaning to life	100	9.09	1.100 (0.913 – 1.326)	-	0.000

Source: Research data, 2016.  
Sensitivity (S), Specificity (E), Positive Likelihood Ratio (PLR), Negative Likelihood Ratio (NLR), and Diagnostic Odds Ratio (DOR)

As regards the defining characteristic “Expresses the desire to enhance congruency of expectations with desires”, it was observed that it is directly related to optimism, motivation, and interest in life. In this work, this characteristic obtained good measurements of sensitivity (86.27%) and reasonable specificity (63.64%) for this diagnosis. Moreover, the presence of this indicator increased Readiness for enhanced hope by 11.

The desire to enhance congruency of expectations with desires is essential to improve adherence and adaptation to treatment, participation in treatment, and adequate rehabilitation<sup>(19)</sup>. However, during treatment, patients evidently feel discouraged, which affects their quality of life and leads to less effective treatment results. Thus, increasing motivation through patient education and shared decision making helps patients become active in their own treatment, which is critical for the care of patients with chronic kidney disease.

In this research, it was found that the defining characteristic “Expresses the desire to enhance hope” was the most prevalent defining characteristic of the NANDA-I. However, the measurements of diagnostic accuracy showed good sensitivity and null specificity. The defining characteristic “Expresses the desire to enhance hope” is useful for the early identification of patients with chronic kidney disease who exhibit Readiness for enhanced hope.

The defining characteristic “Expresses the desire to enhance problem solving to meet goals” and “Expresses the desire to enhance ability to set achievable goals”, had a statistical association with the diagnosis. The possible interventions of the patients with chronic kidney disease include nutritional counselling, weight control, physical activity, adherence to the drug regimen and healthy living habits (such as smoking cessation), pressure control, glycaemic index, and reduction in phosphorus and potassium levels. These interventions must be stimulated by the nurses to achieve the targets of dialysis treatment.

The patients with chronic kidney disease who followed the therapy control regime appropriately increased the chance of obtaining the diagnosis of this study by five.

Therefore, the defining characteristics “Expresses desire to enhance congruency of expectations with desires” and “Expresses desire to enhance problem solving to meet goals” reached a degree of relevance, specificity, and consistency in the inference of the nursing diagnosis Readiness for enhanced hope. Nurses who are aware of the predictive defining characteristics can plan better nursing interventions and more effectively direct achievable goals.

In this sense, nurses are important members of the health team because they can identify low hope situations

and offer support to patients with feelings of hopelessness. The investigation of patient responses in terms of their beliefs is inherent to nursing, and can improve the promotion of patient health.

## ■ CONCLUSION

This study found a prevalence of 82.22% for the nursing diagnosis Readiness for enhanced hope in a sample of 66 patients with chronic kidney disease in dialysis. Moreover, it was found that all the clinical indicators had good sensitivity. With regard to specificity, the clinical indicator “Expresses desire to enhance congruency of expectations with desires” showed good measurements, surpassing 60%.

Thus, investigating the accuracy of the clinical diagnosis indicators Readiness for enhanced hope is relevant because it identified sensitivity, specificity, and odds ratio. In this regard, studies of this nature support the improvement of diagnoses for adults and elderly people with chronic kidney failure.

In the field of nursing, knowledge of the diagnostic accuracy measurements of specific populations can help nurses choose the more appropriate and effective actions to promote health.

This study also revealed that nurses could use the Herth Hope Scale to infer the nursing diagnosis Readiness for enhanced hope.

Studies of this nature contribute to the teaching of reasoning for nursing diagnoses and the health promotion of patients with chronic kidney patients. With regard to research, the knowledge acquired with this methodological design provides scientific grounding to plan care for different populations and direct nursing actions toward measurable and safer results.

A limitation of this study is the presentation of results that refer to adults and elderly patients with chronic kidney disease assisted at a dialysis clinic. Thus, any generalisations of the measures of accuracy presented here for other populations or other contexts should be viewed with caution.

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Received: 06.26.2016

Approved: 04.11.2017