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CONTENT VALIDATION OF A CARE PLAN FOR CHILDREN WITH KIDNEY DISEASES

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ARTICLE INFO	ABSTRACT					
Article History: Received 19 th April, 2020 Received in revised form 20 th May, 2020 Accepted 16 th June, 2020 Published online 30 th July, 2020	Objective : To develop and validate the content of a care plan for children with kidney diseases. Method: Content validation study using the Delphi technique carried out with 34 specialist nurses in the first round and 22 in the second round. The steps were: identification of nursing diagnoses, outcomes and interventions, elaboration of the care plan and content validation by specialists. The content validity index was used in the twophases of the Delphi method. Results: A care plan was elaborated with 11 nursing diagnoses, 15 nursing outcomes and 22 nursing interventions. After analysis by experts as to the adequacy and inadequacy in two Delphi rounds, the final validated					
Key Words:						
Nursing; Nursing Process; Kidney diseases; Children.	plan consisted of five diagnoses, nine outcomes and 12 interventions with a Content Validity Index ≥ 0.80 . <i>Conclusion</i> : The study enabled the development and validation of a care plan for children with kidney diseases. This will contribute to nursing care and educational activities,					
*Corresponding author: Rebecca Stefany da Costa	enabling an understanding of the real needs of this clientele.					

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INTRODUCTION

Childhood kidney diseases (KDs) include congenital anomalies and hereditary diseases (Vivarelli *et al.*, 2017). They become even more impactful in children during the growth process because they compromise the percentages of weight and height and development, affecting school activities relevant to social and cognitive growth (Silverstein *et al.*, 2018; Sarica*et al.*, 2016). In the face of the adversities generated by KDs in children, the Nursing Care Systematization (NCS) is a potential instrument for planning care, optimizing protocols and achieving goals that will promote the restoration of health (Silva *et al.*, 2016).

The Nursing Process (NP) stands out among the various ways of systematizing nursing care, which enables the development of a care plan (CP) based on the real needs of the users. In the dimension attributed to the NP, the nursing diagnoses, outcomes and interventions constitute elements that are essential to the practice of nurses, basically aiming at qualifying the care provided (Rabelo-Silva *et al.*, 2017). In this sense, it is possible to build a Nursing CP using NANDA International (NANDA-I), an organization that standardizes the language of nursing diagnosis (ND), the Nursing Outcomes Classification (NOC) to classify nursing outcomes, and the Nursing Intervention Classification (NIC) to guide the preparation of nursing prescriptions (Herdman; Kamitsuru, 2018; Johnson *et al.*, 2016;

Docheterman; Bulechek, 2016). To ensure a safer care, the NCS and NP also collaborate with academic research and general analyses for the measurement of nursing care quality (Nomura et al., 2016). Research studies aimed at the validation process in the nursing area is still scarce. The main problem to validation studies is the low adherence of specialists to validate the content (Lopes et al., 2013). Moreover, studies about content validation of CPs are rare in the literature, andthoseon validation of CPs for patients with kidney diseases are even more rare, demonstrating the relevance of the present research (Silva et al., 2016). In the NCS applied to children with KDs, the elaboration of a CP through the NP represents an important instrument in the care of children with KDs, which can contribute to the improvement in the quality of assistance to these clients. In this context, a question is raised: what are the nursing diagnoses, outcomes and interventions necessary to compose a CP for children with KDs? Thus, the present study aimed to develop and validate the content a CP for children with KDs (Conselho Federal de Enfermagem, 2009). The content validation of a CP is important because it contributes to adjust and organize the nursing care in a more precise way, what is a justification for the realization of this study (Ballantyne, 2016; Souza Neto et al., 2017).

MATERIALS AND METHODS

This is a content validation study of a CP for children with KDs using the Delphi technique. This study is part of an integrated project that identified in a precious moment the nursing diagnoses, outcomes and interventions according to the NANDA-I, NOC, and NIC, respectively, that composed the CP to be validated by specialists (Herdman; Kamitsuru, 2018; Johnson et al., 2016; Docheterman; Bulechek, 2016). The identification of diagnoses occurred after nursing consultations with a sample of 68 children admitted to the pediatrics sector of a University Hospital located in the Northeast region of Brazil. The sample was defined using the formula for finite populations (Brito et al., 2016). The inclusion criteria were: children aged 0 to 12 years, as established by the Estatuto da Criança e do Adolescente (ECA) in Brazil in relation to the concept and chronological limits (Brasil, 1990), with medical diagnosis of KD, hospitalized during the data collection period. The exclusion criteria were: existence of comorbidities such as neoplasms, neurological diseases and mental disorders. Data were collected using an instrument for interview and physical examination previously validated that addressed sociodemographic and clinical data, in addition to the defining characteristics (signs and symptoms), associated and risk factors subdivided into 12 domains (health promotion, nutrition, elimination and exchange, activity/rest, perception/cognition, self-perception, roles and relationships, sexuality, coping/ tolerancein face of stress, safety/protection, and comfort) present in NANDA-I taxonomy II, which had already been used in previous research (Silva et al., 2017). Data collected enabled the establishment of the Nursing Diagnoses, Objectives and Interventions that underlie this study.

To perform the diagnostic inference, Gordon's reasoning was adopted, based on the hypothetical-deductive model, considering the predictive testing of the hypothesis as key to the diagnostic process, defining that the diagnostic process involves four perceptual and cognitive activities (Gordon et al., 1994). Clinical reasoning was used in the elaboration of the outcomes/interventions, understood as the nurse's ability to judge nursing diagnoses and then construct nursing care actions, promoting the establishment of a CP geared to the needs of the clientele. The research for the construction of nursing diagnoses, outcomes and interventions took place between June and December 2018 and was carried out by one of the researchers of this study who has a residency in pediatric nursing, experience in the care of children with KDs and expertise in the area of nursing diagnoses and NANDA-I Taxonomy. All children who participated signed the Informed Consent Term (ICT) as established by Resolution 466 of 2012 of the National Health Council for research involving human beings (Brasil, 2012). The nursing diagnoses, outcomes and interventions identified were submitted to the review process by three

specialist nurses in nephrology who worked at the hospital, field of study, as assistants. The reviews took place through a focus group with a list of diagnoses, outcomes and interventions previously developed by the main researcher based on her theoretical and practical knowledge on the subject. This strategy sought to ensure a consensual judgment and achieve greater accuracy before the results. The CP was submitted to expert analysis for the validation of its content. The specialists were selected through the analysis of curriculums available in the Lattes Platform, using the following inclusion criteria: being a nurse, having developed a study related to nursing diagnoses in children with KDs which has been published or reported in and end-of-course work (specialization, master or PhD), or having supervised studies in the area, as well as experience in nephrology services (Tresaet al., 2017). Professionals who had conducted studies in the thematic area and reported them in undergraduate end-of-courseworks were excluded. Fifty eight (58) specialist nurses were selected and invited to participate in the research by means of an invitation letter explaining the evaluation criteria and the request for appreciation. After acceptance, the specialists received, by email, the instrument for evaluation of the CP composed of two sections: 1. socioeconomic characterization of the specialists (sex, age, time elapsed since conclusion of professional training, level of education, region of the country of residence, occupation - teaching or care-, experience in the care of people with chronic KDs, and experience in teaching on nursing diagnoses); 2. Evaluation of the CP (diagnosis, outcomesand intervention) regarding the adequacy or inadequacy of the items present in the CP using a five-point Likert scale (1 = totally inadequate; 2 = moderately)inadequate; 3 = level of adequacy similar to that of inadequacy, 4 =moderately adequate, and 5 = totally adequate). The survey with experts took place between September and December 2018 and was carried out in two rounds. The 34 selected experts who participated in the first round were invited to appreciate the instrument, but in the second round only 22 evaluated the formulated instrument according to the experts' suggestions in the first round. The final CP comprised the nursing diagnoses, outcomes and interventions considered valid according to the adopted criterion: Content Validity Index (CVI) \geq 0.80 (Alexandre; Coluci, 2011). The collected data received the following treatments: the instruments for data collection were enumerated and the variables contained therein were coded and inserted in a database using Microsoft Office Excel® 2009 software and had their CVI calculated after the second round. the Mann-Whitney non-parametric test was used in the comparison of the two Delphi rounds, to verify whether the results in Delphi 2 round were more satisfactory than in Delphi 1. The level of significance adopted was 5%. The research was approved by the Ethics Committee for Research with Human Beings under opinion 1,007,954.

RESULTS

The specialists were mostly female (82%), between 35 and 45 years old (51%), residents of the Northeast region of Brazil (100%) and graduated formore than 15 years (90%). Regarding occupation, the majority (85%) worked as teachers in educational institutions, had a PhD (65%), taught subjects related to NDs (86%) and provided care to people with chronic kidney disease (CKD) (72%). The results of the CVI obtained in Delphi 1 and 2 are presented below, on the items of the CP proposal (Table 1). The initial CP had 11 diagnoses, 15 outcomes and 22 interventions. In the first Delphi round, 6 diagnosis, 6 outcomesand 10 interventions had a CVI below 0.80, and were, thus, excluded. In this sense, the CP was redone and sent back to the specialists for a second Delphi round, where all items obtained a CVI \geq 0.80, thus considered validated. Therefore, the final CP was composed of five diagnoses, nine outcomes and 12 interventions, as shown in Table 2.

DISCUSSION

The presence of the diagnosis "Excessive fluid volume" in the the final version of the CP is relevant because in other studies carried out

ND	CVI [*] of the item			Outomes	CVI [*] of the item			Interventions	CVI [*] of the item		
	Delphi 1	Delphi 2	p- value**		Delphi 1	Delphi 2	p- value**		Delphi 1	Delphi 2	p- value**
Excessive fluid volume	0.963	0.998	0.001	Electrolyte balance	0.901	0.963	0.012	Water control	0.951	0.993	0.038
				Vital signs	0.844	1.000	0.044	Monitoring of vital signs	0.870	0.907	0.002
Impaired urinary	0.912	1.000	0.023	Urinary	0.826	0.994	0.026	Urinary retention care	0.852	0.990	0.014
elimination				elimination				Pain control Infection control	0.963 0.870	1.000 0.981	0.001
Risk for infection	0.941	1.000	0.014	Risk control: Infectious process	0.897	0.984	0.001	Infection control	0.923	0.969	0.004
				Nutritional status	0.845	0.973	0.045	Nutritional control	0.901	0.998	0.001
				Tissue integrity: skin and mucous membranes	0.826	0.994	0.023	Skin supervision	0.844	0.963	0.044
Ineffective protection	0.726	0.986	0.046	Immune status	0.897	1.000	0.012	Immunization/vaccina tion control	0.826	0.944	0.006
-				Nutritional status	0.845	1.000	0.035	Nutrition control	0.701	0.969	0.020
Fatigue	0.852	0.978	0.001	Energy	0.852	0.997	0.035	Energy control	0.844	0.963	0.018
Hyperthermia	0.742			conservation Thermoregulatio n	0.724			Environment control Temperature regulation	0.826	0.944	0.002
Imbalanced nutrition: less than body needs	0.656			Appetite	0.613			Nutritional therapy Nutritional monitoring	0.602 0.637		
Disturbed sleep pattern	0.553			Sleep	0.536			Environment control: comfort	0.541		·
Acute pain	0.563			Pain control	0.559			Improved sleep Medication administration	0.526		
Fear	0.582			Fear level: child	0.523			Pain control Technique to calm Presence	0.551 0.545 0.537		
Anxiety	0.547			Coping	0.527			Anxiety reduction	0.519		

Table 1. Agreement among specialist nurses on the items of the validated CP for children with KDs, representing the CVI* of the two Delphi rounds. Brazil, 2020

*CVI- Content Validity Index; **Mann-Whitney test

Nursing Diagnosis (NANDA-I)*	Outcomes(NOC)*	Interventions (NIC) [*]
Excessive fluid volume	Electrolyte balance	Water control
Excessive nula volume	Vital signs	Monitoring of vital signs
	Urinary elimination	Urinary retention care
Impaired urinary elimination	Ormary emmation	Pain control
		Infection control
Risk for infection	Risk control: Infectious process	Infection control
KISK IOI IIIIection	Nutritional status	Nutritional control
	Tissue integrity: skin and mucous membranes	Skin supervision
Ineffective protection	Immune status	Immunization/vaccination control
	Nutritional status	Nutritional control
Fatigue	Energy conservation	Energy control
Fallgue	Energy conservation	Environment control

 $^{*}CVI > 0.80$

with renal patients this nursing diagnosis has been presented as the most prevalent (Silva et al., 2016; Silva et al., 2017). This diagnosis is associated with patients with KDs due to factors such as weight gain, presence of edema, anasarca and changes in breathing pattern (Vivarelliet al., 2017; Herdman; Kamitsuru, 2018). This is justified by the inability of the kidneys to perform their functions due to changes in glomerular filtration rate, reducing the excretion of water and consequently leading to the accumulation of interstitial fluids and elevated serum levels of urea, creatinine and cystatin C (Silverstein et al., 2018; Tresaet al., 2017). The goal in the case of detection of the ND "Excessive fluid volume" is to reestablish the electrolyte balance and vital signs (Johnson et al., 2016). Electrolytes are responsible for maintaining the metabolic activity at the cellular level; the overload of organic electrolytes can reach toxic levels and cause organ failure (Silverstein, 2018). Furthermore, vital signs are indicators of the health status and of the respiratory, circulatory, neural and endocrine functions of the body, giving clues on the health status and severity of the disease (Domenech et al., 2017). In view of this, nurses must perform continuous monitoring of vital signs in order to assess the basic conditions of body maintenance and evaluate the control of entry and exit of fluids through water balance fortimely identification

and correction of possible deficits (Docheterman: Bulechek, 2016; Ribeiro, 2016). The ND "Risk for Infection" was also present in the validated CP. This ND is common in chronic hospitalized patients due to the vulnerability to invasion and multiplication of pathogenic organisms with potential to harm the health (Herdman; Kamitsuru, 2018), as well as in chronic renal diseases (Silva et al., 2016). The goal for this diagnosis is to control the risks for infectious processes, nutritional status and tissue integrity: skin and mucous membranes¹². Based on this ND, the intervention plan aims at infection control, nutrition control and skin supervision (Docheterman; Bulechek, 2016). It is noteworthy that the hospitalization process makes patients vulnerable, exposing them to a diverse colony of microorganisms. Infection control maneuversare necessary, mainly in cases of oliguria originating from renal dysfunction and invasive procedures such as bladder catheterization and fistula punctures which increase the risk of opportunistic infections (Ribeiro, 2016; Sutton et al., 2017). Adequate nutritional status also keeps patientsable to naturally resist possible infections. Therefore, interventions aimed at controlling nutrition and supervising the skin are extremely relevant, considering that such conducts prevent complications during the hospitalization process (Johnson et al., 2016; Docheterman; Bulechek, 2016). The ND "Impaired urinary elimination" present in the CP is justified due to the presence of dysfunctional elimination of urine in patients with KDs caused by multiple causes, among them sensorimotor damage, urinary tract infections, and possible anatomical obstructions (Silva et al., 2016; Silva et al., 2017). The urinary system is one of the most susceptible to infection. The risk is accentuated in the presence of comorbidities or during the performance of procedures that involve structures of this system, being one of the main risks to the patients with KDs (Kari *et al.*, 2015). In case of detection of this diagnosis, urinary elimination is a goal¹² and it is important to promote interventions that involve urinary retention care, pain control and infection control (Docheterman; Bulechek, 2016). It is important to highlight that Nursing must have its interventions backed on preventive practices, detecting and managing possible risks for urinary retention, especially regarding aseptic techniques for insertion of bladder catheters, use of analgesic drugs prescribed for pain relief, and stimulation of spontaneous diuresis (Kelly, 2016). The ND "Ineffective protection" applies to the condition of children with KDs which suggests the possibility of immunological disorders (Silva et al., 2017). These disorders are related to the decrease or failure in the performance of the body's defenses against invading agents, including, therefore, an inadequate response of innate immunity or adaptive immunity (Nunes et al., 2018). The immune status and nutritional status of children with kidney disorders are among the goals pointed out for this ND (Johnson et al., 2016). The control of immunization/vaccination and the control of nutrition are important for the effectiveness of such goals (Docheterman; Bulechek, 2016). It is important to establish measures aimed at the immunological aspects of the patients, such as the analysis of the vaccination history and the need for supplementation with immunobiologicals (Herdman; Kamitsuru, 2018).

Furthermore, in order to improve nutritional status, it is important to monitor the prescription, administration and acceptance of the diet by the patient, as well as perform daily monitoring of weight, especially before and after performing procedures such as dialysis (Johnson et al., 2016; Docheterman; Bulechek, 2016). Another prevalent ND in the study was "Fatigue", related to nutritional aspects derived from the renal pathological condition (Herdman; Kamitsuru, 2018). In fact, patients with CKD have a deficiency in the production of erythropoietin, leading to a predisposition to anemia and consequent susceptibility to the development of fatigue, which is physiologically explained by the inadequate dissemination of oxygen in the blood (Zalai; Bohra, 2016). In the face of this diagnosis, the patientsare expected to achieve the goal of energy conservation through interventions in the control of energy and the environment (Johnson et al., 2016; Docheterman; Bulechek, 2016). In order to obtain favorable outcomes for energy conservation and environmental control, there must be an investment in ambience, providing a quiet environment, with adequate lighting and comfortable temperature to encourage rest (Ribeiro, 2016). The establishment of a scientificallybased CP allows for standardized, targeted and specific assistance aimed at real and potential problems in children with KDs (Silva et al., 2017). To this end, it is essential that clinical findings are correctly identified and assertive actions planned, developed and implemented in a timely manner (McLellan et al., 2017).

CONCLUSION

The study allowed the elaboration and validation of a proposal for a CP directed at children with KDs composed of five nursing diagnoses, eight nursing outcomes, and 12 nursing interventions, validated by specialists, all with $CVI \ge 0.80\%$. This study will allow the that nursing care be directed so as to meet the real needs of this clientele and the families, making the team's work process more accurate and effective, demonstrating the impact of this research. Finally, future studies to foster clinical validation for a scientific practice are intended, favoring both Nursing and clients, since the use of nursing CPs allows autonomy in care provision in an efficient, resolutive, transformative and humanized way.

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