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Background

Chronic kidney disease (CKD) is a serious public health issue. Appropriate nutritional care may prevent CKD onset in patients at risk and slow progression in those at early stage. To improve care of patients with early CKD is mandatory to know the clinical competence (CC) of dietitians; however, no adequate tool to measure the latter issue has been published.

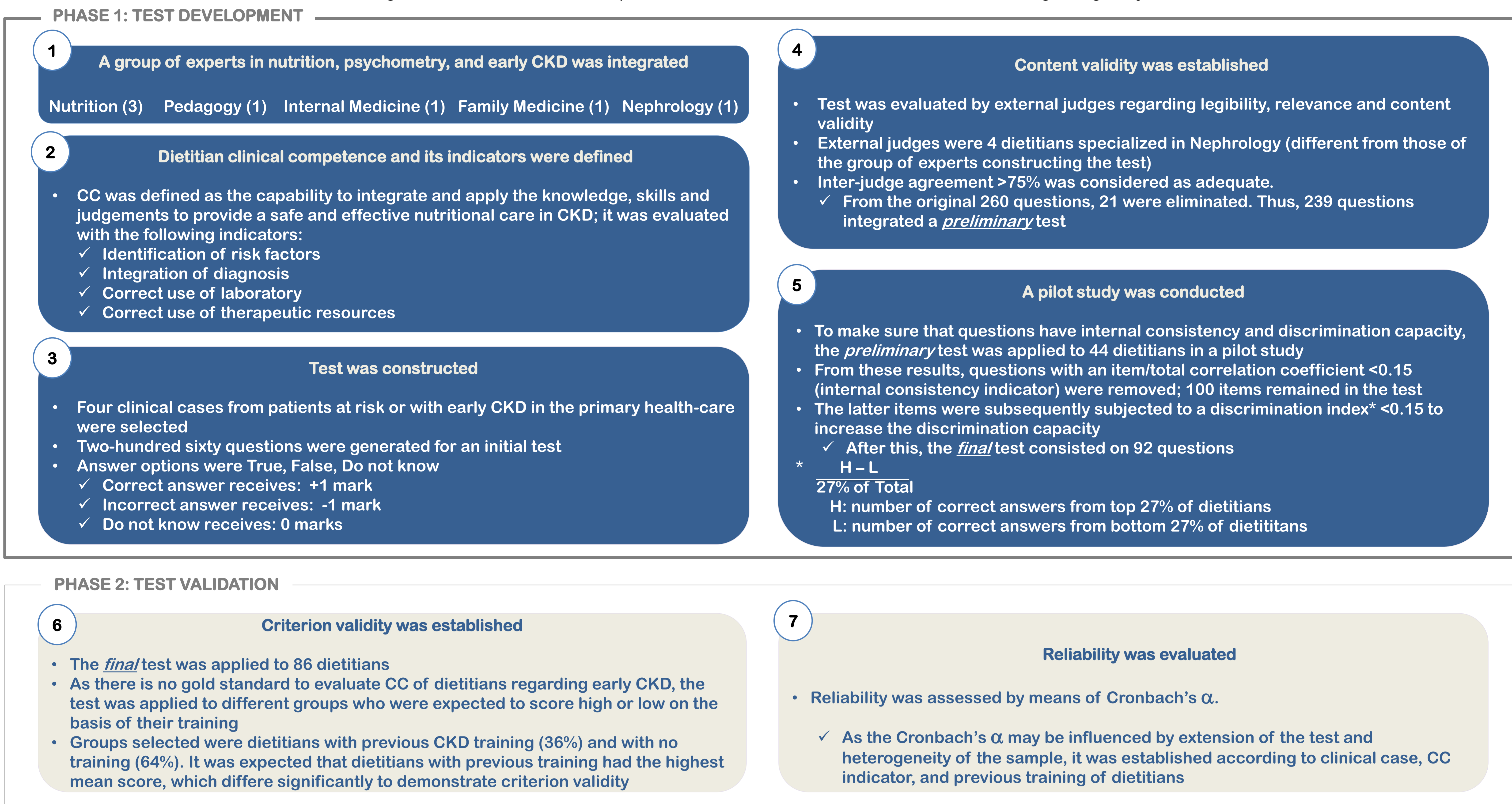
AIM: To develop and validate a test to evaluate dietitian's CC about nutritional care in patients with early CKD.

Methods

Descriptive cross-sectional validation study. The study consisted on 2 phases: 1) test development, and 2) validation. Figure 1 describes procedures divided in 7 steps.

Statistical analysis: χ^2 and Mann Whitney U tests as appropriate, $p < 0.05$ considered as significant. Cronbach's $\alpha \geq 0.70$ was considered as adequate for reliability assessment.

Figure 1. Procedures for development and validation of the test for CC of dietitians regarding early CKD



Results

Table 1. Characteristics of dietitians subjected to the final test, according to the previous CKD training status.

Characteristic	With training (n 23)	Without training (n 63)	p value
Female sex, %	94	81	0.38
Age, yrs	25 ± 2	27 ± 6	0.44
Academic degree, %			0.72
Bachelor of nutrition	69	77	
Postgraduate	31	23	
Time since school graduation, yrs	3.0 (1.2-7.0)	1.5 (1.0-4.5)	0.08
Nutrition counseling experience, yrs	2.0 (1.0-6.0)	0.7 (0-2.2)	0.005
Job institution, %			0.21
Government	50	38	
Private	31	15	
Other	19	46	
Professionals activities related to CKD, %	87	23	<0.0001
Self-perception of CC in CKD, %			<0.0001
Very low - Low	0	77	
Regular - High	100	23	
Training in other chronic diseases, %	94	15	<0.0001

Table 2. Number of questions and reliability (Cronbach's α) of preliminary and final tests, by clinical

Test Component	Preliminary Test		Final Test	
	N	α	N	α
Case 1	58	0.53	26	0.75
Case 2	64	0.52	23	0.70
Case 3	57	0.53	21	0.74
Case 4	60	0.52	22	0.69
TOTAL	239	0.83	92	0.91

Table 3. Comparison of test scores according to the previous CKD training status (criterion validity, step 6)

Test component	With training (n 23)	Without training (n 63)	p value
Case 1 score	7 (-1 - 15)	3 (0 - 8)	0.035
Case 2 score	9 (4 - 13)	4 (0 - 7)	0.003
Case 3 score	10 (2 - 14)	2 (-1 - 5)	<0.0001
Case 4 score	13 (6 - 16)	6 (2 - 10)	0.001
TOTAL	37 (15 - 60)	14 (3 - 26)	0.003

Table 4. Reliability (Cronbach's α) of the final test, according to the test component and previous CKD training status (step 7)

Test Component	Whole sample (n 86)	With training (n 23)	Without training (n 63)
Case 1	0.67	0.81	0.53
Case 2	0.59	0.72	0.45
Case 3	0.69	0.79	0.54
Case 4	0.69	0.79	0.59
TOTAL	0.88	0.94	0.80

Table 5. Reliability (Cronbach's α) of the final test, according to the CC indicators and previous CKD training status (step 7)

CC indicator	Whole sample (n 86)	With training (n 23)	Without training (n 63)
Identification of risk factors	0.39	0.52	0.20
Integration of diagnosis	0.59	0.70	0.53
Correct use of laboratory	0.64	0.75	0.57
Correct use of therapeutic resources	0.84	0.92	0.74

Conclusions

- A test to evaluate Dietitian CC about nutritional care in patients with early CKD was developed
- After eliminating questions by means of the item/total correlation and discrimination index, the internal consistency increased
- Dietitians with previous CKD training had higher test scores than those without training, supporting the criterion validity

- The test had higher reliability (considering both test components and CC indicators) in dietitians with previous CKD training *versus* those without training
- The present test is a consistent and suitable instrument to identify dietitians with or without an adequate CC in nutritional care of early CKD patients; however, it is advisable to use the test in the complete version (no only parts of it)
- The availability of a reliable test to measure Dietitian CC may help to improve care of patients with early CKD

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