



## ORIGINALES

### Psychometric analysis and Validity of Readiness for Interprofessional Learning Scale in undergraduate Chilean nurses

Análisis psicométrico y validez de la Escala de Disposición al Aprendizaje Interprofesional en estudiantes de enfermería en Chile

Lisette Irarrázabal<sup>1</sup>  
Carla E. Förster<sup>2</sup>  
Ignacio Villagran<sup>3</sup>  
Silvia Barrios Araya<sup>1</sup>  
Paola Carrasco<sup>4</sup>

<sup>1</sup> Pontificia Universidad Católica de Chile, Faculty of Medicine, School of Nursing, Chile.

<sup>2</sup> Universidad de Talca, Undergraduate Vice President, Evaluation and Quality of Teaching Department, Chile. [carla.förster@utalca.cl](mailto:carla.förster@utalca.cl)

<sup>3</sup> Pontificia Universidad Católica de Chile, Faculty of Medicine, Health Sciences Department, Kinesiology Career, Chile.

<sup>4</sup> Universidad Andrés Bello, Doctoral Program in Nursing, Chile.

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#### ABSTRACT:

**Introduction:** Interprofessional education offers health students an opportunity to learn, practice, and improve communication and collaboration skills through learning experiences with other professions. It is important to determine their willingness to actively engage with other students in their learning process, which is assessed through the Readiness for Interprofessional Learning scale, one of the most widely used internationally. The objective was to adapt and validate the Readiness for Interprofessional Learning Scale to Spanish among nursing students.

**Method:** The study design was cross-sectional quantitative, with a sample of 330 nursing students of different years. Cronbach's Alpha and exploratory and confirmatory factor analysis were performed.

**Results:** The original scale had 23 items, only 16 met the validity and reliability criteria. The 16 items are distributed in the dimensions: Teamwork and collaboration (T: 10 items), *Patient Centered Work* (EP: 4 items) and Professional identity (PI: 2 items). Cronbach's alpha index for the full scale was 0.8259 (CyTE  $\alpha=0.81$ ; PC  $\alpha=0.77$  and PI  $\alpha=0.61$ ).

**Conclusion:** the RIPL scale validated in this study has adequate reliability and validity for the dimensions Teamwork and collaboration and *Patient Centered Work*. Elaboration of new items are required for Professional Identity

**Keywords:** Readiness scale for interprofessional learning, RIPLS, nursing, students, validation.

## RESUMEN:

**Introducción:** La educación interprofesional ofrece a los estudiantes de salud una oportunidad para aprender, practicar y mejorar las habilidades de comunicación y colaboración a través de la experiencia de aprendizaje con otras profesiones. Es importante determinar la disposición que tienen de involucrarse activamente con otros estudiantes en su proceso de aprendizaje, lo que se evalúa a través de la Escala de disposición al aprendizaje interprofesional, una de las más usadas internacionalmente. El objetivo fue adaptar y validar al español la Escala de disposición al aprendizaje interprofesional (RIPLS) en estudiantes de enfermería.

**Método:** Diseño de estudio cuantitativo transversal, a una muestra de 330 estudiantes de enfermería de diferentes años, se realizó Alfa de Cronbach y análisis factorial exploratorio y confirmatorio.

**Resultados:** La escala original tenía 23 ítems, solo 16 cumplen con los criterios de validez y confiabilidad. Los 16 ítems, se distribuyen en las dimensiones: Colaboración y trabajo en equipo (CyTE: 10 ítems), Trabajo centrado en el paciente (PC: 4 ítems) y Sentido e Identidad Profesional (PI: 2 ítems). El índice alfa de Cronbach de la escala completa fue de 0.8259 (CyTE  $\alpha=0.81$ ; PC  $\alpha= 0.77$  and PI  $\alpha=0.61$ ).

**Conclusión:** La escala RIPL validada en este estudio tiene confiabilidad y validez adecuada para las dimensiones Trabajo en equipo y colaboración y Trabajo centrado en el paciente. Se requiere elaborar nuevos ítems para Sentido e Identidad profesional.

**Palabras clave:** Escala de disposición para el aprendizaje interprofesional, RIPLS, enfermería, estudiantes, validación.

## INTRODUCTION

According to WHO <sup>(1)</sup>, Interprofessional Education (IPE) provides students with an opportunity to learn, practice and improve communication and collaboration abilities through experiencing learning from and with other professions. In other words, it optimizes knowledge and abilities for a more efficient collaborative practice, centered on the patient, families, and communities. It is also pointed out that interprofessional education leads to a more comprehensive care making its incorporation in health care very important <sup>(1,3)</sup>.

IPE is defined as an activity that involves two or more professions that are interactively working together seeking to improve collaboration and the quality of care <sup>(4)</sup>. It improves confidence in the sense of professional identity; IPE reduces prejudice and ignorance in the roles and duties that may exist amongst professionals of different areas increasing comprehension and improving teamwork and collaborative abilities <sup>(2,3)</sup>. IPE considers elements from the adult learning theory <sup>(5)</sup>, the social and psychological theories <sup>(6)</sup>, the way groups and teams operate <sup>(7)</sup> and professional expertise <sup>(8)</sup>, all of which are included in this learning initiative <sup>(2)</sup>. Characteristics and conditions necessary for a positive result in the process of interprofessional learning in IPE and its later use in work environments arise from these theories and their practical application. These elements have been grouped in four areas: 1) Relationship between different professional groups; 2) Teamwork and collaboration; 3) Roles and responsibilities; 4) Patient benefits, professional practice and personal growth <sup>(2)</sup>.

In this context, the term Readiness emerges defined as the means by which an individual believes a change is necessary and has the capability to implement it <sup>(9)</sup>, also considered as a way of predicting success in the implementation of an innovation. In this study, it refers to the degree by which the students are willing to participate in the IPE <sup>(10)</sup>.

The innovation contemplates changes, or transformations, considering that the students learn in a different manner, which is why receiving an IPE that encourages a

sense of professional identity centered not only in the profession itself but also that of experiencing an education that allows the encounter with the roles of other health professionals, professionals that will all eventually share a workplace <sup>(11)</sup>. This implies overcoming pre-existing barriers, clarifying myths and prejudice from other health professionals; in other words, coming out of the comfort zone and habitual learning methodologies.

The interprofessional learning strategies will allow nursing students to be prepared for collaborative work and will improve their level of confidence in patient care <sup>(12)</sup>, as well as empower their role in care management. In this sense, care management that considers, amongst other things, providing planned care, using available resources, fixed objects, goals and strategies and leading the collaboration amongst teams of health professionals <sup>(13)</sup>. It is key, for this last point, to know the degree of willingness towards the AIP amongst the nursing students to apply it in its formation.

### **Readiness for Interprofessional Learning Scale (RIPLS)**

Taking into consideration the attitude or readiness of the apprentices is very relevant in the development of interprofessional strategies. A relevant aspect in this direction has been the creation of the Readiness for Interprofessional Learning Scale (RIPLS) which in Spanish translates to “Escala de disposicion al aprendizaje interprofesional”. This scale was created to evaluate the disposition of the students to interactively get involved with other students in their learning process and contemplate the four areas of EIP previously mentioned.

The original RIPLS considers 19 items divided into three subscales: 1) Teamwork and Collaboration, 2) Sense of Professional Identity and 3) Roles and Responsibilities. This scale was used by other researchers and established as a useful tool for evaluating the readiness of college students for interprofessional learning. In 2004-2005 the scale was modified by one of its authors to strengthen the third factor (Roles and Responsibilities) and explore possibly new factors like focusing on the patient. The scale finally comprehends 23 items divided in three dimensions; Teamwork and Collaboration (13 items); Patient Centered Work (5 items); and Sense of Professional Identity (5 items); with Cronbach’s alpha of respectively 0,88; 0,86; 0,69.

Revised records have proven the necessity for the implementation of EIP and the benefits it has on the formation of future health professionals, specifically in the field of nursing given the role it has in the management of patient care and its articulation regarding the diverse health professionals involved in this process.

This study aims to analyze the psychometric properties and validate, in Spanish, the 23 item RIPLS scale on nursing students from a university in the Metropolitan Region of Chile to later use said scale on nursing students from other universities as well as students pertaining to other health careers.

# MATERIAL AND METHOD

## Universe and sample

The universe consisted of the totality of the School of Nursing students from a traditional Chilean university of the Metropolitan Region (593 students enrolled). All the regular students from the nursing career year 2016 (from first to fifth year) were invited to participate. The sample size was calculated based on the study population (593), under the assumption of maximum uncertainty (expecting the 50% of proportion) with a trust interval of 95% and an estimated precision of 5% the sample size would be N=234. The final size was of 330 students that answered the entire poll which supersedes the size of the estimated sample. This is considered representative and equitable to each level in the career: 71 in first; 72 in second, 88 in third, 42 in fourth and 57 in the fifth level. The age range of the students was between 17 and 24 years old.

## Instrument

The instrument applied corresponds to the version proposed by Reid et al. of the Readiness for Interprofessional Learning Scale (RIPLS). It is a Likert Scale of Self-reported appreciation which consists of 23 statements distributed in 3 dimensions: Teamwork and Collaboration; Sense of Professional Identity; and Patient Centered Work. The answer categories were five; 1= Strongly disagree 2=Disagree 3=Neutral 4=Agree and 5= Strongly agree. The reported for the complete scale is of 0,76 and of 0,88; 0,86; 0,69 respectively.

## Procedure

The validation procedure was executed in three stages:

**1) Judges' translation and validation:** This stage included the following activities: a) translation and back translation, in which two bilingual people separately translated the scale from English into Spanish and then from Spanish into English and both versions were then compared; b) a cultural and linguistic validation was done with five methodological and thematic experts; finally c) the *face to face* validation technique was used, technique that involved the application of the instrument on 25 students, 5 representatives from each career, those of which answered the scale and then participated in focal groups where they were asked about their comprehension on the different items, their complexity and their general appreciation for the instrument. These students were excluded from the application of stage 2. The scale was adjusted, and the final version was generated based on this information.

**2) Massive application of the instrument:** A schedule was coordinated with each of the course's head teachers on when to apply the instrument. A member of the team who did not teach in said courses explained the classroom in what the instrument consisted of and invited the students to participate in the investigation, it was explained to them that their participation would consist of answering the instrument after signing the inform consent document.

**3) Analysis:** The digitization of all the answers was done by two people on an excel spreadsheet and then the following analysis were done with the Statistical Package for the Social Sciences (SPSS) 25.0 9IBM Corp., Armonk, NY, USA)

## Analysis Plan

To assure the validity and determine if the theoretical factorial structure of the RIPLS applied in the Spanish version, an Exploratory Factorial Analysis (EFA) was done in addition to a Confirmatory Factor Analysis (CFA). Before the EFA, assumptions were verified using the Kaiser-Meyer-Olkin (KMO) test and the Bartlett's Sphericity Test. The EFA was done following Hair, a random subsample was taken (S1, n=171) and using all the test items, an EFA with Varimax orthogonal rotation was implemented, using the method of iterated main factors (imf). The advantage of this method is that the communalities' estimations (the percentage of the common variance associated with all the factors) correspond to the square of the correlations of the coefficients, but they are iteratively estimated (simple re-sampling). This allows for more efficient estimates. Additionally, this rotation maximizes the square of the charges or considerations of each factor to take greater advantage of the correlation between the items of the complete test. The estimation of the EFA was adjusted to a model of three factors (theoretical model). The cutting point for the factorial charges were established at 0.3. In the CFA the other random subsample was used (S2, n=156), only with the items that remained after the previous stages. Varimax orthogonal rotation was implemented, the ipf method and the test was adjusted to the 3-factor model. In addition, the following adjustments to the model were estimated to the data: Normed fit index (NFI), Goodness of Fit index (GFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI). All these indexes are considered acceptable if their values  $>.90$ ; the root of mean square error of approximation (RMSEA) is considered acceptable if it is  $<.08$ . The confirmatory factor structure of the scale was tested through a structural equation analysis, the AMOS version 22 of Maximum Likelihood was used for the estimations. The total sample (n=327) was randomly divided in two using SPSS version 25.

For the analysis of the instrument's internal consistency, the Cronbach's Alpha coefficient was estimated in two stages. On the first stage, all of the scale's items and each theoretical subscale with all of its respective items. On the second stage, The Alpha was estimated for the whole scale and each subscale, after eliminating the items that did not have good results in the factorial analysis. The Nunnally and Bernstein proposal was considered as criteria for the analysis:  $<.7$  questionable;  $0.7$  to  $0.79$  adequate/acceptable;  $0.8$  to  $0.89$  good;  $0.9$  to  $0.95$  excellent and  $>0.95$  doubtful.

## Ethical considerations

All the students signed a written consent form before answering the scale; this consent form was approved by the Ethics Committee of The University of Research. The answers were anonymous and voluntary, without any consequences to students' academic performance and during the whole process the ethical principles were protected, and the protocol approved by the Institutional Ethics Committee was followed.

## RESULTS

### Descriptive

On the Table 1 the descriptive statistics are presented from each item. They highlight items T1, T2 and T5 in which the students do not utilize the option "Strongly agree"

and item T3 is in the great majority responded positively (no answers disagreeing). Regarding the asymmetry, most of the items are distributed with a negative tendency, meaning, towards the answers agreeing or strongly agree. The kurtosis is positive in the items except for items T8, S16, and S17.

**Table 1:** Descriptive statistics from the items from the RIPLS scale.

Item	N	Min	Max	Mean	s.d.	Asymmetry		Kurtosis	
						Statistic	S.E.	Statistic	S.E.
T1	330	2	5	4.84	.404	-2.833	.134	9.837	.268
T2	330	2	5	4.90	.339	-4.049	.134	21.056	.268
T3	330	3	5	4.93	.278	-4.217	.134	18.793	.268
T4	330	1	5	4.45	.705	-1.412	.134	2.650	.268
T5	330	2	5	4.85	.426	-3.452	.134	14.545	.268
T6	330	1	5	4.75	.543	-2.719	.134	9.785	.268
T7	330	1	5	4.66	.583	-1.895	.134	4.911	.268
T8	330	1	5	4.14	.913	-.768	.134	-.158	.268
T9	330	1	5	4.38	.795	-1.350	.134	2.068	.268
T10	329	1	5	4.33	.723	-.993	.134	1.214	.268
T11	330	1	5	4.65	.558	-1.791	.134	5.207	.268
T12	329	1	5	4.49	.659	-1.261	.134	2.107	.268
T13	330	1	5	4.70	.577	-2.241	.134	6.711	.268
S14*	328	1	5	4.10	.874	-1.304	.135	2.441	.268
S15	330	1	5	4.52	.818	-2.284	.134	6.154	.268
S16	329	1	5	2.47	.972	.311	.134	-.271	.268
S17*	329	1	5	3.74	1.09	-.449	.134	-.784	.268
S18*	330	1	5	3.26	.958	.097	.134	-.340	.268
EP19	330	1	5	4.59	.572	-1.438	.134	3.818	.268
EP20	330	1	5	4.90	.359	-5.303	.134	43.368	.268
EP21	330	1	5	4.60	.674	-2.186	.134	6.820	.268
EP22	330	1	5	4.92	.366	-6.604	.134	55.098	.268
EP23	330	1	5	4.93	.395	-7.733	.134	67.996	.268

(\*) items with a negative redaction, the answers are already inverted on the analysis

### Exploratory Factor Analysis (EFA)

The KMO (0.759) and an adequate goodness of fit ( $\chi^2(231) = 1407.587$ ;  $p < ,000$ ) indicate that it is valid to do the EFA with subsample 1 containing 22 items (item S16 was eliminated due to a lack of correlation with the rest and its effect on all the analyses).

The Kaiser criteria shows 7 factors with eigenvalues over 1; nevertheless, the grouping of the items did not make theoretical sense and the factorial weights were shared and very similar leaving the last 4 with just one item, which is why it was taken to three factors with a total explained variance of 45.68%, where the first factor explains the 28.14%, the second factor 9,88 and the third factor 7.63%. The rotated array shows that most of the items are grouped in their theoretical dimensions (Table 2); nevertheless, item T3 has factorial charges lower than 0,3 in all the factors and should be eliminated. Additionally, items T5 and T11 have factorial charges shared between factor 1 and 2 which are greater in factor 1, which is not its original factor.

Items T6, T7, T13 and S15, although they load two factors, have a greater weight than the theoretical factor.

**Table 2:** Exploratory Factor Analysis. Rotated component matrix

Item	Components		
	1	2	3
T1	0.032	0.586	-0.050
T2	-0.103	0.384	-0.111
T3	-0.133	0.265	0.182
T4	0.139	0.701	0.061
T5	0.556	0.370	0.153
T6	0.451	0.606	-0.035
T7	0.418	0.554	0.019
T8	0.024	0.549	0.374
T9	0.226	0.577	0.236
T10	0.294	0.550	0.178
T11	0.486	0.375	0.126
T12	0.225	0.585	0.346
T13	0.340	0.668	0.036
S14	0.055	0.238	0.497
S15	0.370	-0.162	0.470
S17	0.117	-0.092	0.770
S18	-0.027	0.170	0.699
EP19	0.666	0.129	0.024
EP20	0.832	0.096	0.085
EP21	0.609	0.129	0.039
EP22	0.816	0.111	-0.048
EP23	0.710	-0.035	0.160

Extraction method: Main components analysis Rotation method: Varimax with Kaiser standardization. The rotation has converged in 6 iterations.

### Confirmatory Factor Analysis (CFA)

Beginning with the CFA executed with the subsample 2, after eliminating the items T3, T11 and S16, it is observed in the rotated array (Table 3) that the items are grouped in three factors with factorial charges superior to 0.3 except for the items T5 (which also charges in another factor), S14, S15 and EP20.

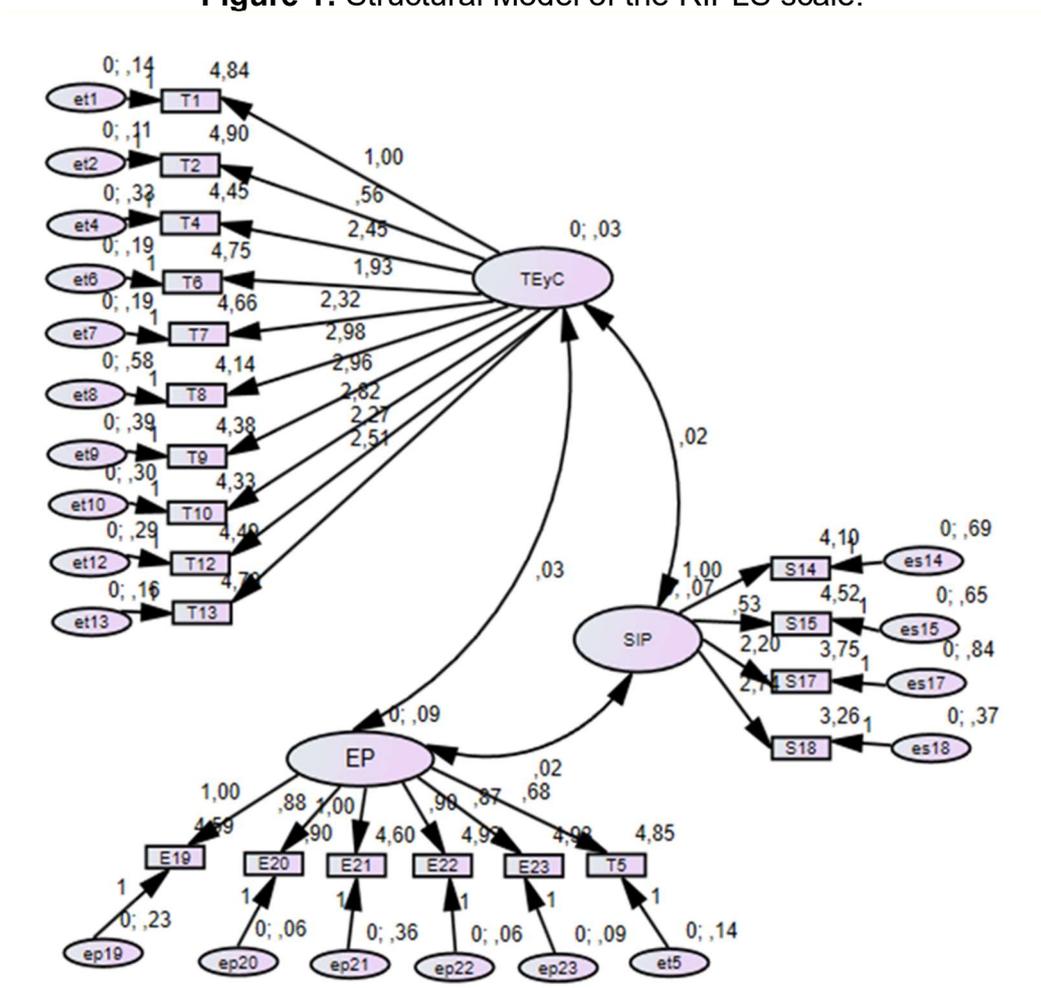
**Table 3:** Factorial weights of the rotated arrays for the CFA model

Item	S	T	EP
T1		0,411	
T2		0,363	
T4		0,504	
T5			0,190
T6		0,493	
T7		0,686	
T8		0,611	
T9		0,631	
T10		0,684	

T12		0,493
T13		0,709
S14	0,182	
S15	0,015	
S17	0,601	
S18	0,684	
E19		0,321
E20		0,268
E21		0,301
E22		0,701
E23		0,810

Thereby, the model of three factors with 20 items has a goodness of fit that is acceptable with  $\chi^2$  normalized by 2.182. The other indexes do not fit the criteria of neither NFI (0.584), TLI (0.628), CFI (0.704), SRMR (0.0952) nor RMSEA (0.086). The structural model of the scale is presented on Figure 1.

Figure 1: Structural Model of the RIPLS scale.



## Internal consistency of the instrument

The trustworthiness of the complete scale (23 items) is good ( $\alpha = 0.825$ ) and regarding the subscale it is also good for Teamwork and Collaboration subscale ( $\alpha = 0.844$ ) and Patient Centered Work ( $\alpha = 0.793$ ) and unlike the Sense of Professional Identity subscale ( $\alpha = 0.411$ ). According to the correlation item test for the total of the instrument, the item S16 decreases the general Alpha and that of the dimension, due to it inversely correlating with the other items which is reason for which it should be eliminated. In the other two dimensions there are no items that reduce the index (Table 1).

After eliminating the items T3, T11 and S16, and following the CFA structure in which the T5 item is changed to the Patient Centered Work, the trustworthiness of the complete scale (20 items) remains adequate ( $\alpha = 0.837$ ).

Both the Teamwork and Collaboration subscale ( $\alpha = 0.829$ ) and Patient Centered Work subscale ( $\alpha = 0.817$ ) are considered to have a good internal consistency; the Sense of Professional Identity subscale continues to have an inadequate index ( $\alpha = 0.588$ ) (Table 4).

**Table 4:** Index for the internal consistency of the complete scale and dimensions

Ítem	Initial reliability of Scale			Cronbach's alpha if the item is deleted	Final reliability of Scale			Cronbach's alpha if the item is deleted
	Scale Mean if the item is deleted	Scale variance if item is deleted	Total element correlation corrected		Scale Mean if the item is deleted	Scale variance if item is deleted	Total element correlation corrected	
T1	54.94	21.718	0.382	0.841	40.51	16.512	0.379	0.826
T2	54.87	22.634	0.180	0.848	40.44	17.289	0.188	0.836
T3	54.84	22.785	0.160	0.848				
T4	55.38	19.113	0.588	0.827	40.95	14.199	0.593	0.805
T5	54.94	20.996	0.505	0.835				
T6	55.06	19.606	0.602	0.827	40.63	14.838	0.559	0.810
T7	55.14	19.763	0.566	0.829	40.71	14.789	0.566	0.809
T8	55.74	18.276	0.495	0.839	41.31	13.399	0.505	0.821
T9	55.49	18.109	0.581	0.829	41.06	13.346	0.580	0.808
T10	55.45	19.007	0.586	0.827	41.02	14.177	0.576	0.807
T11	55.14	20.299	0.479	0.835				
T12	55.30	18.779	0.631	0.823	40.87	14.078	0.601	0.804
T13	55.11	19.243	0.668	0.822	40.68	14.421	0.650	0.801
<b>Subscale Teamwork and Collaboration</b>				<b>0.844</b>				<b>0.829</b>
S14	14.0059	4.994	0.295	0.301	11.4911	4.561	0.320	0.553
S15	13.5976	5.206	0.280	0.317	11.0828	4.731	0.318	0.556
S16	15.6331	6.436	-0.118	0.588				
S17	14.4320	4.152	0.293	0.282	11.9172	3.434	0.398	0.502

<b>S18</b>	14.923	4.286	0.395	0.202	12.4083	3.743	0.463	0.439
	1							
<b>Subscale Sense of Professional Identity I</b>				<b>0.411</b>				<b>0.588</b>
<b>EP19</b>	19.23	2.659	0.529	0.771	24.07	3.595	0.566	0.793
<b>EP20</b>	18.91	2.810	0.728	0.718	23.75	3.763	0.769	0.756
<b>EP21</b>	19.19	2.568	0.495	0.792	24.04	3.528	0.514	0.812
<b>EP22</b>	18.88	2.798	0.678	0.728	23.73	3.848	0.655	0.775
<b>EP23</b>	18.87	2.866	0.537	0.765	23.71	3.923	0.524	0.800
<b>(T5)</b>					23.77	4.071	0.564	0.793
<b>Subscale Patient Centered Work</b>				<b>0.793</b>				<b>0.817</b>
<b>Scale total</b>				<b>0.825</b>				<b>0.837</b>

Note: (T5) According to the values. this item was changed from the Teamwork and Collaboration factor (T) to the Patient Centered Work (EP), (S) Sense of Professional Identity.

## DISCUSSIONS AND CONCLUSIONS

In this study, the version of the RIPLS with 23 items proposed by Reid et al. was translated into Spanish, culturally adapted and then applied to nursing students from a Chilean university. The results show that two out of three subscales are trustworthy, and their items are grouped using a valid factorial structure. Nevertheless, adjustments are required and so is a betterment of the third subscales. The results are discussed in detail below.

The complete scale presented a satisfactory internal consistency in subscales such as the Teamwork and Collaboration subscale ( $\alpha = 0.829$ ) and the Patient Centered Work subscale ( $\alpha = 0.817$ ) but did not exemplify such results in subscales such as that of the Sense of Professional Identity ( $\alpha = 0.588$ ) possessing  $\alpha < 0.7$ <sup>(27)</sup>. These values are slightly inferior to those reported by Reid et al. <sup>(16)</sup> (respectively.  $\alpha = 0.88$ ;  $0.86$ ;  $0.69$ ) and those reported by Oishi, Haruta, Yoshimic, Goto, Yoshida and Yoshimoto <sup>(21)</sup> in the last two dimensions (respectively;  $\alpha = 0.900$  and  $0.718$ ).

Various authors that have analyzed the validity of the RIPL scale. for the versions containing 29 items <sup>(15, 23-25)</sup>, have shown an organization varying between 3 and 4 factors. Regarding the factorial structure, this study identified three factors like those reported by Reid et al.<sup>(16)</sup> in the English version applied to health professionals. Nonetheless, the items T3, T11 and S16 were eliminated for having inadequate factorial weights and reducing the internal consistency. More specifically, the item T3 "Team-working skills are essential for all health care professionals to learn" has charges inferior to 0.3 in all of the factors. This could be explained by the high frequency of answers in the "strongly agree" alternative which could indicate an understanding from the nursing students that there is a necessity for teamwork alongside other health professionals.

Likewise, T11 "I would welcome the opportunity to work on small-group projects with other health care professionals" charges in the dimension of Patient Centered Work abolishing the item's meaning. Lastly, the item S16. which was also eliminated. will be mentioned further on. The item T5 "Patients ultimately benefit if health care professionals work together to solve patient problems.". even when the EFA shares a factorial charge with the theoretical factor. In the CFA it is associated with the items

from the factors centered on the patient. This could be explained by the wording in which the patient is referred to. This difference could be due to the respondents' characteristics, which according to the original study done in the United Kingdom corresponds to professionals from different areas<sup>(16)</sup>, meanwhile in our study it corresponds to only Nursing bachelor students.

Furthermore, Oishi et al.<sup>(21)</sup> using the scale of 23 items found 4 factors: including, Patient Centered Work and Sense of Professional Identity have a similar build up to the original, meanwhile the items from the Teamwork and Collaboration factor are divided in two: items associated to the students learning and items associated to the formation from the professors or program. Specifically, in the Sense of Professional Identity subscale aspects from the construction that could influence in the results are conjugated; four of the five items are presented inversely and are the only ones that have this redaction.

Moreover, the item S16 "There is little overlap between my role and that of other health care professionals." generated conflict in the face-to-face validation due to the students not understanding that it was in reference to the overlapping of their roles, and it was decided that the explanatory parenthesis would be added, which, according to the results, was not sufficient. This dimension has resulted to be inconsistent on different studies<sup>(22,25,26)</sup> and the causes are diverse: On the one hand, some authors point out that the results in this dimension do not relate to the participation in interprofessional<sup>(27)</sup> activities meanwhile others state that it is probable that it is mediated by the interprofessional learning opportunities that the students have been presented with<sup>(22)</sup>.

Two articles discuss the topic of the sturdiness of the RIPLS to measure Interprofessional Learning<sup>(27,28)</sup>. These point out that RIPLS does not manage to adequately measure said construct given its naturally complex nature and that the experience of whoever is responding influences the results. Nevertheless, our results account for a stable construct for Teamwork and Collaboration and Patient Centered Work which, according to the authors' opinions, rather than discarding the instrument it is necessary to reinforce the Sense of Professional Identity subscale.

The Sense of Professional Identity is recognized as a socio-relational and cultural process composed of a certain correlation between oneself and others based on where one is situated. It is through this correlation that one gets to know oneself and recognizes oneself socially<sup>(29)</sup>; it is for this reason that it is important to contemplate this concept in the process of interprofessional learning and in the case for this scale, improve said factor. Therefore, evaluating the student's sense of professional identity will allow for the identification of the degree by which said sense is constructed throughout their academic trajectory and strengthen it to achieve better professional interaction amongst others.

This study's main contribution is that of providing the academic community with the psychometric analysis of an instrument used for measuring the willingness for interprofessional learning, translated into Spanish, and applied to Chilean university students.

It is recognized as a limitation of the study that, to foster greater diversity of experiences regarding the students' formation and make a validation of a greater

scale. the sample must be enlarged to include students in other careers and ideally other universities.

An advancement on this topic is observed in the study regarding the validation of the RIPLS scale in health science students <sup>(30)</sup>.

## REFERENCES

1. Gilbert JH V, Yan J, Hoffman SJ. A WHO Report: Framework for Action on Interprofessional Education and Collaborative Practice. *J Allied Health*. 2010;39(3):196.
2. Parsell G, Bligh J. The Development of a Questionnaire to Assess the Readiness (Nurse). Blackwell Med Sci LTD [Internet]. 1999 [cited 2020 Nov 23];33:95–100. Available from: <http://www.scribd.com/doc/186659242/The-Development-of-a-Questionnaire-to-Assess-the-Readiness-Nurse>
3. Groessl JM, Vandenhouten CL. Examining Students' Attitudes and Readiness for Interprofessional Education and Practice. *Educ Res Int* [Internet]. 2019 Jan. 2019;1–7. Available from: <https://doi.org/10.1155/2019/2153292>
4. Reeves S. Why we need interprofessional education to improve the delivery of safe and effective care. *Interface Commun Heal Educ* [Internet]. 2016 Jan 1 [cited 2020 Nov 23];20(56):185–96. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1414-32832016000100185&lng=en&nrm=iso&tlng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-32832016000100185&lng=en&nrm=iso&tlng=en)
5. Kolb DA. Experiential learning: Experience as the source of learning and development. *J Organ Behav*. 1987;8(4):359–60.
6. Hewstone M, Carpenter J, Franklin-Stokes A, Routh D. Intergroup contact between professional groups: two evaluation studies. *Journal of community and applied social psychology*. 1994;4:347-63.
7. Jacques D. *Learning in Groups*. 2a ed. London: Kogan Page; 1991: 223 p.
8. Donald A S. *Educating the Reflective Practitioner: Towards a New Design for Teaching and Learning in the Professions*. San Francisco, California: jossey-Bass Inc;1987: 349 p.
9. Haffar M, Al-Karaghoul W, Djebarni R, Gbadamosi G. Organizational culture and TQM implementation: investigating the mediating influences of multidimensional employee readiness for change. *Total Qual Manag Bus Excell* [Internet]. 2019 [cited 2020 Nov 23];30(11–12):1367–88. Available from: <https://doi.org/10.1080/14783363.2017.1369352>
10. Helfrich CD, Blevins D, Smith JL, Kelly PA, Hogan TP, Hagedorn H, et al. Predicting implementation from organizational readiness for change: A study protocol. *Implement Sci*. 2011;6(1):4–6.
11. Haugland M, Brenna SJ, Aanes MM. Interprofessional education as a contributor to professional and interprofessional identities. *J Interprof Care* [Internet]. 2019 Dec 9. [cited 2020 Nov 23];1–7. Available from: <https://doi.org/10.1080/13561820.2019.1693354>
12. Karim J, Mohamad N, Gilbert J, Saibon I, Meerah S, Hassan H, et al. Preparing nursing students for interprofessional learning. *Educ Med J*. [Internet]. 2014 Jun [cited 2020 Nov 24]. 1;6. Available from: <https://doi.org/10.5959/eimj.v6i2.238>
13. Estefo S, Paravic T. Enfermería En El Rol De Gestora De Los Cuidados. *Cienc y enfermería*. [Internet] 2010 [cited 2020 Dec 2];16(3):33–9. Available from: <http://dx.doi.org/10.4067/S0717-95532010000300005>

14. de Araújo T, de Vasconcelos A, Pessoa T, Fort F. Multiprofissionalidade e interprofissionalidade em uma residência hospitalar: O olhar de residentes e preceptores. *Interface Commun Heal Educ*[Internet]. 2017[cited 2020 Dec 2];21(62):601–13. Available from:<https://doi.org/10.1590/1807-57622016.0295>
15. Parsell G, Spalding R, Bligh J. Shared goals, shared learning: Evaluation of a multiprofessional course for undergraduate students. *Med Educ* [Internet]. 1998 [cited 2020 Nov 22];32(3):304–11. Available from: <https://doi.org/10.1046/j.1365-2923.1998.00213.x>
16. Reid R, Bruce D, Allstaff K, McLernon D. Validating the Readiness for Interprofessional Learning Scale (RIPLS) in the postgraduate context: are healthcare professionals ready for IPL?. *Med Educ*[Internet]. 2006. [cited 2020 Nov 23];40(5):415–22. Available from: <http://doi.org/10.1111/j.1365-2929.2006.02442.x>
17. Carvajal A, Centeno C, Watson R, Martínez M, Rubiales S. How is an instrument for measuring health to be validated? *An Sist Sanit Navar* [Internet]. 2011. [cited 2020 Nov 23];34(1):63–72. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21532647>
18. Crocker LM. Introduction to classical and modern test theory. Australia: Australia: Wadsworth Thomson Learning; 1986.
19. Hair J, Black W, Babin B, Anderson R. Multivariate data analysis. 8<sup>th</sup> Edition. Hampshire: Cengage Learning; 2019.
20. Nunnally JC, Bernstein IJ. Teoría psicométrica. 3a ed. México: México McGraw-Hill; 1995.
21. Oishi A, Haruta J, Yoshimi K, Goto M, Yoshida K, Yoshimoto H. Cross-cultural adaptation of the professional version of the Readiness for Interprofessional Learning Scale (RIPLS) in Japanese. *J Interprof Care*[Internet]. 2017[cited 2020 Nov 23];31(1). Available from: <https://doi.org/10.1080/13561820.2016.1248814>
22. Li Z, Sun Y, Zhang Y. Adaptation and reliability of the readiness for inter professional learning scale (RIPLS) in the Chinese health care students setting. *BMC Med Educ* [Internet]. 2018[cited 2020 Nov 23];18(1):309. Available from:<https://doi.org/10.1186/s12909-018-1423-8>
23. Kerry MJ, Wang R, Bai J. Assessment of the Readiness for Interprofessional Learning Scale (RIPLS): An item response theory analysis. *J Interprof Care*[Internet]. 2018[cited 2020 Dec 12];32(5):634–7. Available from: <https://doi.org/10.1080/13561820.2018.1459515>
24. Roopnarine R, Boeren E. Applying the Readiness for Interprofessional Learning Scale (RIPLS) to medical, veterinary, and dual degree Master of Public Health (MPH) students at a private medical institution. *PLoS One* [Internet]. 2020 Jun 11. [cited 2020 Nov 23] 15(6):e0234462. Available from: <http://doi.org/10.1371/journal.pone.0234462>
25. El-Zubeir M, Rizk DEE, Al-Khalil RK. Are senior UAE medical and nursing students ready for interprofessional learning? Validating the RIPL scale in a Middle Eastern context. *J Interprof Care* [Internet]. 2006 [cited 2020 Nov 23];20(6):619–32. Available from:<https://doi.org/10.1080/13561820600895952>
26. Mahler C, Rochon J, Karstens S, Szecsenyi J, Hermann K. Internal consistency of the readiness for interprofessional learning scale in German health care students and professionals. *BMC Med Educ* [Internet]. 2014. [cites 2020 Nov 23];14(1):145. Available from: <http://dx.doi.org/10.1186/1472-6920-14-145>
27. Mahler C, Berger S, Reeves S. The Readiness for Interprofessional Learning Scale (RIPLS): A problematic evaluative scale for the interprofessional field. *Journal of Interprofessional Care* [Internet]. 2015. [cited 2020 Nov 23];29(4):289-

91. Available from: <http://doi.org/10.3109/13561820.2015.1059652>
28. Schmitz C, Brandt BF. The Readiness for Interprofessional Learning Scale: To RIPLS or not to RIPLS? That is only part of the question. J Interprof Care [Internet]. 2015 [cited 2020 Nov 23];29(6):525–6. Available from: <https://doi.org/10.3109/13561820.2015.1108719>
29. Teodosio SS, Padilha MI. “To be a nurse”: a professional choice and the construction of identity processes in the 1970s. Rev Bras Enferm [Internet]. 2016. [cited 2020 Nov 23];69(3):401–8. Available from: <http://dx.doi.org/10.1590/0034-7167.2016690303i>
30. Villagrán I, Jeldez P, Calvo F, Fuentes J, Moya J, Barañao P, et al. Spanish version of the readiness for interprofessional learning scale (RIPLS) in an undergraduate health sciences student context. J Interprof Care [Internet]. 2021. [cited 2020 Nov 23];1-9. Available from: <https://doi.org/10.1080/13561820.2021.1888902>

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