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Predicción de la disposición a consumir alimentos de marcas saludables mediante la teoría del comportamiento planificado: El papel de la alfabetización nutricional

Tesis para obtener el Grado Académico de Doctor en Administración de Negocios

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Lima, 19 de diciembre 2023

DECLARACIÓN JURADA DE ORIGINALIDAD DE TESIS

Yo Elizabeth García Salirrosas docente de la Unidad de Posgrado de Ciencias Empresariales, Escuela de Posgrado de la Universidad Peruana Unión.

DECLARO:

Que la presente investigación titulada: **"Predicción de la disposición a consumir alimentos de marcas saludables mediante la teoría del comportamiento planificado: El papel de la alfabetización nutricional"** del autor Ronny Francisco Chilón Troncos tiene un índice de similitud de 8 % verificable en el informe del programa Turnitin, y fue realizada en la Universidad Peruana Unión bajo mi dirección.

En tal sentido asumo la responsabilidad que corresponde ante cualquier falsedad u omisión de los documentos como de la información aportada, firmo la presente declaración en la ciudad de Ñaña, a los 19 días del mes de diciembre del año 2023.

Dra. Elizabeth García Salirrosas

ACTA DE SUSTENTACIÓN DE TESIS DE DOCTOR

En Lima, Ñaña, Villa Unión, el día 19 de diciembre del año 2023, siendo las 21:00 horas se reunieron en la sala virtual zoom https://adventistas.zoom.us/j/89444334022 de la Universidad Peruana Unión, bajo la dirección del Señor Presidente del Jurado: Dr. Luis Eddie Cotacallapa Subia y los demás miembros siguientes:

Secretario:	Dr. Christian Daniel Vallejos Angulo
Vocal:	Dr. Iván Apaza Romero
Vocal:	Dr. Guillermo Mamani Apaza
Vocal:	Dr. Edwin Octavio Cisneros Gonzales
Asesora:	Dra. Elizabeth Emperatriz García Salirrosas

Con el propósito de llevar a cabo el acto público de la sustentación de tesis de posgrado titulada: **"Predicción de la disposición a consumir alimentos de marcas saludables mediante la teoría del comportamiento planificado: El papel de la alfabetización nutricional"**; del egresado: Rony Francisco Chilón Troncos, conducente a la obtención del Grado Académico de Doctor en Administración de Negocios. El Presidente del Jurado dio por iniciado el acto académico, invitando al candidato a hacer uso del tiempo señalado para su exposición (20´). Concluida la misma, el Presidente del Jurado invitó a los demás miembros a realizar las preguntas, cuestionamientos y aclaraciones pertinentes que fueron absueltas por el candidato, el acto fue seguido de un receso de quince minutos para las deliberaciones y el dictamen de Jurado. Vencido el tiempo de las deliberaciones, el Jurado procedió a dejar constancia escrita del resultado en la presente acta, con dictamen siguiente:

APROBADO por UNANIMIDAD calificación: APROBADO CON ESCALA VIGESIMAL 17 ESCALA BUENO CON NOMINACIÓN DE MUY BUENO, CON MÉRITO SOBRESALIENTE.

El Presidente del Jurado hizo alusión al doctorando y solicitó al secretario la lectura correspondiente para poner en su conocimiento el resultado, terminado el mismo y sin objeción alguna, el Presidente del jurado dio por concluido el acto, en fe de lo cual firman al pie.

Presidente Secretario

Candidato

Vocal Vocal

TABLA DE CONTENIDO

Predicting willingness to consume healthy brand foods using the theory of planned behavior: The role of nutritional literacy

Keywords: public health; nutritional literacy; healthy eating; scale.

Abstract

Maintaining good eating practices is a factor that allows a healthy life; therefore, it is necessary to promote health, being a fundamental tool, nutritional literacy. In this context, this study aims to validate the psychometric characteristics of the S-NutLit scale to assess nutritional literacy. It is a variable made up of two dimensions, and data were collected from a sample of 396 Peruvian adults. By means of an instrumental study, indicators of acceptable reliability were obtained, having also an ideal measurement model to evaluate nutritional literacy in the Peruvian context, which is composed of 11 items. Thus, the aim is to reinforce health promotion activities through a nutritional literacy diagnosis, which due to its characteristics, can be self-administered and used by health entities and other entities in general that are interested in knowing the feeding practices of an individual, which undoubtedly lead to good health.

Introduction

Nutritional literacy is one of the factors that drive to maintain good practices regarding the consumption of adequate food; that is, it allows to have information regarding the risks generated due to poor nutrition. This term is conceptualized as the union of educational strategies, which is accompanied by environmental support, whose purpose is to voluntarily promote a change in food alternatives and other changes that are linked to food and nutrition that lead to the well-being and health of the population (Dominguez-Rodriguez et al., 2023) and as those cognitive and social skills that motivate an individual to know, process and practice information regarding how to improve health through practices that contribute to the maintenance of good health (Nutbeam 1998), also considered as a concept that is closely related to behavior with respect to personal lifestyle practices and the way in which a person may interact with the health system (Zwierczyk et al., 2022).

Contrary to this, nutritional illiteracy leads to poor daily dietary choices, which increases the development of disease (Rasheed 2023). Under this approach, individuals have the option to make more informed decisions regarding their diet, since the root cause of many diseases is precisely poor nutrition (García-Salirrosas et al. 2022). According to Pi (Pi et al. 2023) the most common gastrointestinal diseases rank third in incidence and fourth most deadly among malignant tumors worldwide, this statistic highlights how important nutritional literacy can be in health care and disease prevention.

Regarding diseases, some of them are originated from lifestyle, genetics, socioeconomic conditions and other factors; research refers that a poor diet can also affect an individual's health (Moscatelli et al., 2023).Although this statement is known by the population, few people are aware of the modification of their unhealthy behavior, which is why they fall back into some disease; thus, health systems have become an important entity to mitigate, to some extent, the adoption of some diseases (Böttcher et al., 2023). Now, taking into account that when a person gets sick, he/she turns to a medical professional for a prescription, it opens the possibility that he/she can directly influence the patient regarding nutritional practices; however, this opportunity has been in vain, since it has been identified that these professionals still lack the

necessary skills to accurately recommend any change in the dietary routines of the patient and that within the curriculum of physicians, a subject oriented to nutrition literacy has not yet been established (Blunt & Kafatos, 2019).

As a result of what was referred to in the previous paragraph and taking into account that food has the potential to be the focus to generate the welfare of the population as a whole, a new alternative has emerged within medical environments, it is the healthy lifestyle medicine, this consists of promoting healthy actions or certain changes that through food allow controlling the onset of some diseases, thus improving the overall welfare of the population (Phillips, Frates, and Park 2020). In addition to this, other studies recommend that literacy regarding nutrition and healthy lifestyle should begin in early childhood, being educational environments an ideal space to instill healthy eating habits, while promoting physical activity, however, this fact could not guarantee a good feeding practice, as it requires the intervention of professionals who can instruct parents and the intervention of the educational institution to be support agents to encourage parents to adopt good feeding practices through nutritional literacy (Lattanzi et al. 2023) (Booze, Hardison, and Haven 2017)(Omid et al., 2022).

However, the action of obtaining and ensuring certain adequate nutritional knowledge is a nutritional literacy activity (Oliveira et al., 2023). Thus, researchers have developed measures to assess nutritional literacy in order to leave an important contribution to diagnose the level of this variable of study, with the purpose of promoting the creation of effective programs to ensure the acquisition of adequate nutritional knowledge by the population. In this regard, (De la Fuente-Anuncibay et al. 2023) evaluated this variable through knowledge of the food pyramid and the food information channel, food information channel and perception of notions of food culture; on the other hand, Buczak (Buczak 2022) developed a "concise scale of food attitudes" in order to diagnose attitudes towards nutrition in adults through an instrumental study, for this purpose he applied 17 items, which were made up of the following dimensions: Anorectic attitude (4 items), experimental attitude (2 items), hedonistic attitude (3 items), orthorectic attitude (3 items), religious attitude (3 items) and vegetarian attitude (3 items).

Although there are studies on nutrition literacy, there are researchers who recognize nutrition literacy as nutrition education. Thus, for example, a Polish version of the SFLQ consists of three dimensions: "Access to information", "knowledge" and "evaluation of information" consisting of 4, 3 and 4 items respectively. Meanwhile, unidimensional metrics that measure the same variable have also been identified and each metric depends on the context in which it is applied, an evidence of this is the study of the variable food literacy Turkish version SFLQ, this was constituted with a unidimensional structure made up of 12 items (Durmus, Gökler, and Havlioglu 2019)the swiss version, which also consisted of 12 items, maintained the same data behavior (Gréa Krause et al., 2018)..

In addition, research linked to food attitudes, refer that it is important for consumers to find and understand the nutritional information of the products they purchase; thus the food industry in its attempt to contribute to nutritional literacy makes public information available regarding nutritional values, ingredients and recommendations on product consumption (Normayanti et al., 2020).However, it seems that efforts to acquire a balanced diet through good nutritional literacy are not sufficient, as reflected in the high rates of patients who come to a health center for care and did not receive the necessary preventive information (Sonoi et al. 2023). Thus, it is important to take into account that contributing to a healthy society is everyone's task, since, according to previous research, nutritional literacy symbolizes a significant change in people's knowledge and attitude (Abdisa et al., 2023).Thus, it is important that in addition to health professionals, every individual can maintain a certain level of nutritional literacy, in order to support disease prevention or combat them, in this case any medical treatment.

Now, taking into account that a first step for an individual to engage with the sustainable food system is to acquire skills that allow him/her to have a healthy relationship with food (Truman, Lane, and Elliott 2017); therefore, it is necessary in the first instance, to measure these skills through a nutritional literacy questionnaire; in this sense, this study is directed to be of use for the Peruvian population, a population that is facing very significant challenges regarding good eating practices. Although the Peruvian state has established certain policies and has been promoting nutritional literacy, there are still some gaps to be covered, for example, the lack of an accurate diagnosis that highlights the nutritional literacy of the population, so this study aims to translate and validate the properties of the nutritional literacy questionnaire S-NutLit to fill the gap referred to, being this favorable for an appropriate intervention.

Nutritional Literacy Scales

Nutritional Literacy measurement scales are important because they are crucial tools for assessing and understanding the level of knowledge, discernment, and understanding that people have about nutritional information and food-related decisions (Michou et al., 2019; Wang et al., 2022).. Its necessity is based on several reasons, such as: Assessing nutritional understanding, detecting gaps in knowledge, developing effective educational programs, improving decision-making, preventing diet-related diseases, empowering individuals (Gibbs & Chapman-Novakofski, 2013; Sharifnia et al., 2019). In such a sense, nutritional literacy measurement scales are essential to understand and address personal, occupational, community and governmental challenges, thus enabling the development of more effective interventions and programs to promote health and wellness.

On this topic, according to the Nutbeam model (Li et al., 2023; Mo et al., 2022; Vrinten et al., 2023; Wang et al., 2022)Functional literacy is understood as the ability to access, understand, and use food and nutrition information, including knowledge of a variety of food and nutrition topics and the practical skills needed to obtain, select, prepare, and eat healthy foods. Interactive literacy is the ability to exchange information, share information, discuss food and nutrition information with others, and engage in collaborative activities. And critical literacy known as the ability to critically evaluate food and nutrition information, recognize the impact of diet and food choices on society, understand food as an integral part of complex production and distribution processes, and recognize the impact of various social conditions. and behavior. Nutritional literacy has been associated with beneficial health outcomes for individuals (Vrinten et al., 2023),in response to this demand, several scales have been designed to measure this construct; one of the measurement scales that has been most widely adapted to various countries is the Nutrition Literacy Scale (NLS), originally designed by Diamond (2007) in adult patients in the USA, later validated and adapted by Patel et al. Patel et al. (2013)(African Americans), Zanella et al. (2022) (Brazil), Guttersrud et al. (2014) (Norway), Michou et al. (2019) (Greece), and Coffman & La-Rocque (2012) (various Latin countries). For their part, Chen et al. (2020) offered a Chinese validity of the NLit scale in diabetic patients. In the following, table 1 describes various measurement scales on Nutritional Literacy.

Table 1. Measuring scales on Nutritional Literacy.

Scale name	Author(s)	Country	N° of items	Dimensions	Population	Alpha
Nutrition Literacy Scale (NLS)	Diamond, J.	USA	28	(1) Nutritional knowledge, (2) healthy nutrition, (3) calorie use, (4) organic food, (5) saturation fats, and (6) portion size.	Adult patients	.84

NLit	Gibbs & Chapman-Novakofski	USA	35	(1) Nutrition and health, (2) energy sources in food, (3) foodlabel and numeracy, (4) householdfood measurement, (5) food groups, and (6) consumer skills.	Adult patients	NE
Student Nutrition Literacy Survey (SNLS)	Hawkins et al.	USA	18	(1) Nutrition Knowledge, and (2) Attitudes, Beliefs, Intent (ABI).	Primary school students	N.E.
Young Adult Nutrition Literacy Tool (YA-NLT)	McNamara et al.	USA	42	(1) functional, (2) interactive and (3) critical.	University students	NE
Food and Nutrition Literacy (FNLIT)	Doustmohammadian et al.	Iran	42	(1) Understanding, (2) knowledge, (3) skill functional, (4) food choice skills, (5) interactive skills, and (6) critical skills.	Primary school children	Between .48 and .80
Nutrition Literacy Questionnaire (NLQ)	Ahn et al.	Korea	30	(1) Dietary guideline, (2) Nutrition and health, (3) Nutrients, (4) Five food groups, (5) Nutrition labeling, and (6) Nutrition management for disease prevention.	Young adults	.87
Thai-Nutritional Literacy Assessment Tool (Thai-NLAT)	Deesamer et al.	Thailand	61	(1) Micronutrients and Health, (2) Nutrition and Energy balance, (3) Decision Making on Nutrition Information, (4) Food Processing, and (5) Food Safety.	Teenagers	N.E.
Short Nutrition Literacy (S-NutLit)	Vrinten et al.	Netherlands	11	(1) Information skills and (2) expert skills	Young adults	.79 y .83
Nutritional Literacy Scale (NLS)	Li et al.	China	28	(1) Nutrition knowledge leve, (2) Cognitive and attitude, (3) Behavior practice ability, and (4) Information acquisition ability.	Patients with kidney disease	.83
Food and Nutrition Literacy Questionnaire for Chinese School-age Children (FNLQ-SC)	Liu et al.	China	19	(1) Knowledge and understanding, (2) access to and planning for food, (3) selecting food, (4) preparing food, and (5) eating.	School-age children and adolescents	.698
Nutrition Literacy	Zhou et al.	China	38	(1) Knowledge, (2) behavior, and (3) skill	Pregnant women	.82

Assessment Instrument for Chinese Pregnant Women (NLAI-P)						
Chongqing Middle school student Nutrition Literacy Scale (CM-NLS)	Wang et al.	China	52	(1) obtain, (2) understand, (3) apply, (4) interact, (5) medial literacy, and (6) critical skill.	High school students	.849
Short-form NL Scale (NL-SF12)	Mo et al.	China	12	(1) Knowledge, (2) understanding, (3) obtaining skills, (4) applying skills, (5) interactive skills, and (6) critical skills.	University students	.89
Nutrition Literacy Questionnaire for the Chinese Elderly (NLQ-E)	Aihemaitijiang et al.	China	25	(1) Knowledge, (2) Understanding, (3) Dietary behavior, (4) Healthy lifestyle, (5) Cognitive skill, and (6) Operational skill.	Elders	.678

After a diligent review of the aforementioned background, there has been significant interest in developing scales to measure the Nutritional Literacy construct. Previous research has designed scales to measure this construct in countries such as USA, Iran, Korea, Thailand, Holland and China. These scales have been applied to various sectors and study populations, such as: adult patients (Diamond 2007; Gibbs and Chapman-Novakofski 2013)patients with kidney disease (Li et al. 2023) pregnant women (Zhou et al. 2022) elderly (Aihemaitijiang et al. 2022) children and adolescents in basic education (Hawkins et al. 2022; Doustmohammadian et al. 2017; Deesamer et al. 2020; Liu et al. 2021; Wang et al. 2022), undergraduates (McNamara et al. 2022; Mo et al. 2022) and young adults (Ahn et al., 2020; Vrinten et al., 2023). When making a discernment of the ten countries that have most emphasized this construct in their studies, it has been found that these come from the United States, China, Iran, Turkey, Australia, Greece, Norway, Taiwan, Qatar and Brazil. While in Peru there is no Spanish version in the scientific literature with evidence of the validity and reliability of a Nutritional Literacy scale. To fill this knowledge gap, it is necessary to conduct a study to adapt the S-NutLit scale (of Holandez origin) for economically active Peruvian adults. In this sense, the validation of the 11-item S-NutLit scale was considered appropriate.

Materials and Method

This research aimed to evaluate the validity and reliability of the instrument that measures nutritional literacy, which was initially designed to measure this variable in young adults and proposed by (J. Vrinten et al. 2023). The S-NutLit scale is composed of 11 items, which are evaluated with a Likert scale 1-5 where 1 represents totally disagree and 5 totally agree.

Validation of the S-NutLit instrument

The S-NutLit scale was developed and validated by Vrinten et al., (2023) who after reviewing the literature, submitting the instrument to expert judgment evaluation to validate the content, interviewing the study population, reducing the number of items and validating the instrument through an exploratory factor analysis and reliability tests determined a short instrument of nutritional literacy for young adults, consisting of 11 items and divided into two dimensions: information skills (α=0.83 and consisting of 08 items) and expert skills (α= 0.79 and consisting of 03 items). Regarding the characteristics of the participants of the referred study, they are 300 young adults, whose mean age is 21.6; moreover, 28% of the population had some active link with the field related to health or nutrition. The statistical treatment indicated the elimination of one item, because it did not comply with the determined limits, thus the scale was made up of 11 items whose subscales explained 43% of the total variance.

However, in order for this same instrument to be applicable to the Peruvian population, a back-translation process was carried out; subsequently, a focus group was carried out with the participation of 6 Peruvian adults, including 1 housewife, 2 university students, 1 Peruvian professional and 2 independent workers. The individuals referred to give semantic validity to the instrument, thus leaving evidence that each of the items were understandable and ideal for its application.

Data collection

The questionnaire was hosted in Google form, thus generating a link that was shared through the social networks WhatsApp and Telegram. In the survey, informed consent was included in the first place; that is, each of the participants, prior to answering the survey, gave their consent regarding knowledge of the study, its use and its purpose; therefore, the study population participated freely, voluntarily and without time limit. Additionally, this study was previously evaluated and approved by the ethics committee of the Universidad Peruana Unión, thus guaranteeing the scientific quality and well-being of the participants.

The study population was Peruvians of legal age, applying a non-probabilistic sampling at the convenience of the researcher, 396 people, aged 18-56 years, of whom 154 were men and 242 women, participated in the study. Regarding marital status, 27 are married, 04 are cohabiting, 5 are divorced, 359 are single and 1 is widowed. Taking into account that the minimum living wage (RMV) in Peru is S/1,025.00, the study population was asked how much is their monthly income in terms of RMV. The result was that 3.3% of the family earns between 11 and 20 minimum wages; 22% earn between 3 and 4 minimum wages; 11.9% earn between 5 and 10 wages; the highest percentage (60.9%) earns up to 2 minimum wages; and finally, 2% earn more than 20 minimum wages.

Statistical analysis

To analyze the data, the SPSS V25 and AMOS V24 programs were used, with Cronbach's alpha reliability and composite reliability (CR) indicators greater than 0.7.

Results

Table 2 shows the descriptive statistics of the S-NutLit scale items (mean, standard deviation, skewness and kurtosis). It is observed that all skewness and kurtosis values are less than +/-1.5 (Ferrando & Anguiano-Carrasco, 2010), which allows the multivariate normality assumption to be met.

Table 2. Descriptive statistics S-NutLit

	Media	Deviation Deviation	Asymmetry	Kurtosis
NL1	3,61	0,89	-0,407	0,120
NL2	3,66	0,94	-0,522	-0,045
NL3	3,59	1,01	-0,563	-0,016
NL4	3,56	0,93	-0,527	0,268
NL5	3,51	0,96	-0,389	-0,088
NL6	3,50	0,96	-0,445	-0,075
NL7	3,51	1,05	-0,561	-0,143
NL8	3,60	0,94	-0,388	-0,024
NL9	3,52	0,96	-0,393	-0,046
NL10	3,17	1,08	-0,236	-0,456
NL11	3,07	1,04	-0,164	-0,395

Table 3 shows the exploratory factor analysis (EFA) of the items, where it can be clearly observed that the items are distributed in two factors, thus confirming the original distribution of the S-NutLit scale. The Kaiser-Meyer-Olkin test is greater than 0.7 (KMO = 0.927) which is high and Bartlett's test is highly significant (Sig = 0.000), so factor analysis can be performed. The total variance explained in the model is 51.620%, which is greater than 50%, with Factor 1 information skill = 46.347%; second factor knowledge skill= 5,272 %. With these results and to continue with the validation process, the confirmatory factor analysis (CFA) was performed.

From the results of the exploratory factor analysis, this study has found the distribution of two factors, for information skills the items NL1, NL2, NL3, NL4, NL5, NL6 and NL8, for knowledge skills the items NL7, NL9, NL10 and NL11. Compared to the original instrument whose distribution for the first factor is NL1, NL2, NL3, NL4, NL5, NL6, NL7 AND NL8 while the second factor is NL9, NL10 AND NL11. This means that the divergence suggests a new way of distributing the structure of the instrument, so there is a high possibility that respondents have identified a different view of nutritional literacy compared to the original instrument.

On the other hand, the evaluation of the reliability of the items has a Cronbach's Alpha of 0.863 for the first factor and 0.831 for the second factor. Likewise, the CR has a value of 0.864 and 0. 835 for the first and second factor respectively; these values guarantee the internal consistency of the items of each dimension of the scale. In addition, the AVE (Average Variance Extracted) that evaluates the convergent validity has a value of 0.651, being an adequate value. The heterotrait-monotrait relationship analysis (HTMT) was also performed to evaluate the discriminant validity between both factors of the scale (Henseler et al, 2015), to comply with this indicator the coefficients must be below the strict point (0.850), in the case of the present study this criterion was met by having the value of 0.826 (See Table 3).

Table 3. Validation of the measurement model, convergent and discriminant validity.

Predictor	Outcome	Std Beta	Alpha	CR	AVE	HTML
Information_Skills	NL8	.644***	0.863	0.864	0.651	0.826
	NL6	.744 ***				
	NL5	.669 ***				
	NL4	.732 ***				
	NL3	.691 ***				

	NL2	.765 ***			
	NL1	.579 ***			
Expert_Skills	NL11	.723 ***	0.831	0.835	0.651
	NL10	.807 ***			
	NL9	.773 ***			
	NL7	.684 ***			

With respect to the model fit, it is shown that all the indicators have an excellent estimation, only the RMSEA indicator is at an acceptable level of 0.063 (Hu and Bentler 1999) (see table 4, figure 1).

Table 4. Model fit

Measure	Threshold	Estimate	Interpretation
CMIN	--	110.045	--
DF	--	43.000	--
CMIN/DF	Between 1 and 3	2.559	Excellent
IFC	>0.95	0.965	Excellent
SRMR	<0.08	0.043	Excellent
RMSEA	<0.06	0.063	Acceptable
PClose	>0.05	0.070	Excellent

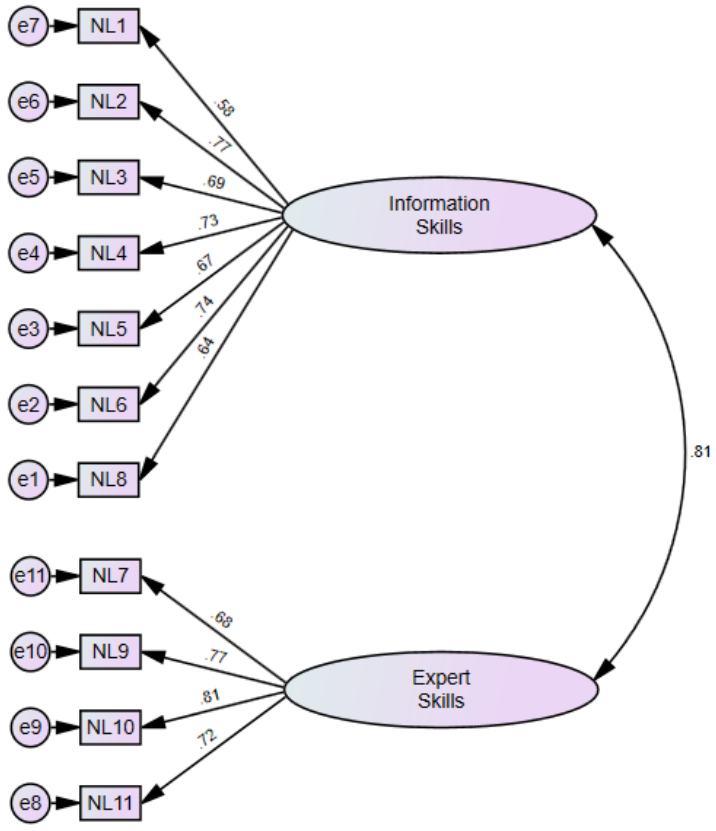

Figure 1. Measurement model to assess nutritional literacy in the Peruvian context.

Discussion

The objective of this study was based on translating and validating the nutritional literacy scale (S-NutLit) in the Peruvian context, in order to provide the population and the scientific community with a short scale that promotes health in the Peruvian population, and that can also be replicated in other contexts. For this purpose, a back-translation and semantic validation procedure was carried out, resulting in the design of an applicable, understandable instrument in a reduced version, which will allow the population to self-administer a diagnosis regarding the conditions of nutritional literacy. The diagnosis made according to this questionnaire could symbolize a determinant for the population to become aware of the importance of knowing about nutrition issues that lead them to adopt certain practices that contribute to a healthy diet that allows the preservation of good health.

While, there is a variety of research regarding nutrition literacy, it can be applied to diverse contexts; for example, there are studies that focus on measuring the impact of parents' nutrition literacy on their children (Shi, Li, and Dong 2017) (Silva, Costa, and Giugliani 2016); as it is assumed that those responsible for the nutrition of minors should be trained to implement eating habits at home so that good eating habits will be a solid foundation to practice throughout their lives (Woźniak et al. 2022)(Shloim et al., 2017).. Within the context applicable to this study, it has been shown that the nutritional literacy scale is constituted by two dimensions, this multidimensional distribution is also supported by Nooriani et al., (2019) who sustain that the nutritional literacy scale presents the following dimensions: perceived susceptibility, perceived severity, perceived benefits, perceived barriers and self-efficacy. Meanwhile, Franciscato et al., (2019) refer that the same nutritional literacy scale is conformed by: nutritional functions, food source and food consumption habit. Additionally, the identification of unidimensional metrics is highlighted as they correspond to a single factor. (Zwierczyk, Kobryn, and Duplaga 2022) (Durmus, Gökler, and Havlioglu 2019) (Gréa Krause et al. 2018), in each of them, it is additionally possible to determine the purchasing behavior of the consumers (Trieste et al. 2021).

According to the results, the scale analyzed has two dimensions and is made up of 11 items, and when the intention is to measure the perspectives of a population, research establishes the need to apply a short questionnaire that is easy to administer and can open up to greater participation by the study population, thus obtaining a larger representative sample that allows for solid, generalizable conclusions with less risk of research bias; in this sense, the number of items does not compromise the validity of the construct (Kerlinger 1986) (Campbell and Fiske 1959). This represents a significant contribution, since the administration of the questionnaire requires only a few minutes, so that the nutritional literacy of the population can be diagnosed immediately; this symbolizes an economic saving for institutions wishing to measure the conditions of their workers and more broadly is useful for any organization that is interested in measuring this variable of study. Taking into account that regardless of the economic benefit (savings), the institutions, according to the results, can intervene effectively through policies based on current information that leads to maintain good nutritional practices.

Finally, it is affirmed that S-NutLit is a reduced scale and applicable in the Peruvian context, its reliability indicators are within the determined ranges and divided into two factors: informational skills (α= .83) and expert skills (α= .79) which makes the instrument a valid metric; another of the measures studied with respect to the variable under investigation is proposed by Ahn et al. (2020) who establishes that the metric for nutritional literacy in young adults is the Nutrition Literacy Questionnaire (NLQ), this is made up of 30 items, divided into 06 dimensions, whose reliability is α = .87; on the other hand, the metric designed and applied by Liu et al. (2021) in China focused on measuring the perspectives of school-age children and

adolescents, the metric is called Food and nutrition literacy questionnaire (FNLQ-SC) and is made up of 19 items and 05 dimensions, whose Alpha values correspond to .698. In addition, within the records, the Nutritional Literacy Scale has been found, made up of 04 dimensions and 28 items, the scale presents an alpha of .830 and applied to Chinese patients with renal diseases. Similarly, Mo et al. (2022) support the Short-form NL scale (NL-SF12) whose objective is to measure nutritional literacy in Chinese university students, this scale has 06 dimensions and 12 items with an acceptable reliability of .89. In all cases, researching, creating and applying a scale to measure nutritional literacy is a key element that can be applied to any context as long as the scale meets the minimum criteria of applicability.

Theoretical implications

Focusing on nutritional literacy has become a strategy to improve and develop people's physical well-being and make a country's health more stable. This study contributes to the literature by carefully developing an overview of the construct supported by recent research. In addition, it also provides a sufficiently solid scientific basis to offer suggestions and implementation of strategies focused on nutritional literacy. The results demonstrate the scope and expansion of nutrition literacy and its impact on citizenship. In this sense, deepening its theoretical approach not only strengthens the quality of the research, but also improves the applicability and relevance of the results in practical and clinical contexts. Furthermore, it contributes to the advancement of knowledge in the field and provides a strong basis for future studies.

Practical implications

Researchers and health professionals have a brief metric that can be easily incorporated in the exercise of their profession and necessary application. As a product of this study, it has been suggested that the nutritional literacy scale (S-NutLit) in the Peruvian context promotes the improvement of quality of life, a healthy diet and the development of good eating habits. In addition, the results of this study suggest that improving nutritional literacy would prevent health risks and complications (diabetes, malnutrition, insufficient intake, poor quality of life), which leads to a modification of lifestyle to prevent the onset and progression of these health disorders.

Since this research confirms the validity and reliability of the scale, it is important that future studies take into account the effect of nutritional literacy on chronic diseases associated with nutrition and on optimal decision making. Likewise, it is possible for the scale presented to be self-completed in a short time, which allows it to be very well used in future studies. In this sense, the proper use of this tool could be a valuable contribution to the scientific community and to those in charge of the Ministry of Health and other public and private organizations, to continue scrutinizing nutritional literacy and improve public health in the country. In addition, it could facilitate the identification of people with inadequate nutrition knowledge or at risk of having it and design effective strategies with the purpose of addressing this need. When reflecting on policy decisions focused on the nutrition of citizens, it is suggested that these should provide the community with clear and useful information about food.

Consequently, this study deepens the knowledge on nutritional literacy, which would allow the top management of any organization (public or private) to consider renewing new ways and strategies to improve the health of more citizens.

Conclusions and limitations

This research demonstrates the distribution of the items that make up the S-NutLit metric to measure nutritional literacy, which has a distribution divided into two factors and has high levels of reliability, with a Cronbach's Alpha of 0.906 and a CR of 0.910, indicators that, being higher than 0.7, are qualified as reliable and valid.910, indicators that when being higher than 0.7 are qualified as reliable and valid; besides having an AVE=0.518; this means that more than 50% of the variance in the items corresponding to the questionnaire is related to the construct, supporting with these indicators a high validity of the instrument. Regarding the limitations of the research, although 396 surveys have been collected, the results cannot be generalized because when applied in different contexts, it is necessary to carry out the necessary process to demonstrate the validity of the survey. The distribution of data differs from the original instrument, so it is established that the S-NutLit scale could not be universal.

Future research

The distribution of the items differs from the original study, so that the variability becomes an opportunity for future studies that can evaluate how the distribution of items could impact the interpretation of the results. In addition, this study also proposes as future research to apply the scale to other Latin American contexts in order to identify if the distribution is maintained and the difference in item reliability.

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Ñaña, Lima, 27 de marzo de 2023

EL COMITÉ DE ÉTICA DE LA ESCUELA DE POSGRADO DE LA UNIVERSIDAD PERUANA UNIÓN

CONSTA

Que el proyecto de investigación del investigador Rony Chilón Troncos, identificado con DNI N° 40052325 y su asesora Elizabeth Emperatriz García Salirrosas, identificada con pasaporte N° 09725194, con título **"Estilo de vida saludable y sostenible del consumidor como factor determinante de la intención de compra de alimentos orgánicos en el mercado peruano**, fue evaluado y aprobado por el Comité de Ética de Investigación de la Escuela de Posgrado de la Universidad Peruana Unión, considerando su calidad científica, el bienestar de sus participantes y la conformidad en función de los estándares establecidos en el Código de Ética para la Investigación de la Universidad Peruana Unión. Para mantener la aprobación del Comité de Ética, se tiene que cumplir con los siguientes requisitos:

1) Cada participante debe dar consentimiento informado. En el caso de menores de edad, por lo menos uno de sus padres o guardianes debe registrar su consentimiento informado y el menor de edad debe registrar su asentimiento informado.

Los resultados de este proyecto puedan ser publicados con referencia a aprobación Número **2023-CE-EPG-00043**

Dr. Josué Edison Turpo Chaparro
Presidente
Comité de Ética de Escuela de Posgrado

Mg. Dany Yudet Millones Liza
Secretaria
Comité de Ética de Escuela de Posgrado

"Año de la Unidad, la Paz y el Desarrollo"

RESOLUCIÓN N° 430-2023/UPeU-EPG-CEPG-D

Ñaña, Lima, 04 de abril de 2023

VISTO:

El expediente de **RONY FRANCISCO CHILÓN TRONCOS,** con código N° 201511124, del Doctorado en Administración de Negocios de la Unidad de Posgrado de Ciencias Empresariales;

CONSIDERANDO:

Que la Universidad Peruana Unión tiene autonomía académica, administrativa y normativa, dentro del ámbito establecido por la Ley Universitaria N° 30220 y el Estatuto de la Universidad;

Que la Escuela de Posgrado de la Universidad Peruana Unión, mediante sus reglamentos académicos y administrativos, ha establecido las formas y procedimientos para la aprobación e inscripción del proyecto de tesis (Art-Paso 1) y la designación o nombramiento del asesor para la obtención de grado de Doctor;

Que **Rony Francisco Chilón Troncos**, ha solicitado la inscripción de su proyecto de tesis (Art-Paso 1) titulado "Estilo de vida saludable y sostenible del consumidor como factor determinante de la intención de compra de alimentos orgánicos en el mercado peruano" y la designación de Asesor, encargado de orientar y asesorar la ejecución del proyecto de tesis en formato artículo;

Estando a lo acordado en la sesión del Consejo de la Escuela de Posgrado de la Universidad Peruana Unión, celebrada el 04 de abril de 2023 y en aplicación del Estatuto y el Reglamento General de Investigación de la Universidad;

SE RESUELVE:

Aprobar el proyecto de tesis titulado "Estilo de vida saludable y sostenible del consumidor como factor determinante de la intención de compra de alimentos orgánicos en el mercado peruano" y disponer su inscripción en el registro correspondiente, nombrar a la Dra. Elizabeth Emperatriz García Salirrosas, asesora, para que oriente y asesore la ejecución del proyecto de tesis en formato artículo el cual fue dictaminado por: Dr. Edwin Cisneros Gonzales, Dr. Ivan Apaza Romero y Dr. Guillermo Mamani Apaza, otorgándoles un plazo máximo de veinticuatro (24) meses para la ejecución.

Regístrese, comuníquese y archívese.

Dra. Damaris Susana Quinteros Zuñiga
DIRECTORA GENERAL

Dra. Ethel Altez Ortiz
SECRETARIO ACADÉMICO