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Construct validity and internal consistency in the Leisure Practices Scale (EPL) for adults

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Abstract *This study proposes and analyzes the construct validity and internal consistency of the Leisure Practices Scale (EPL). This survey seeks to identify the preferences and involvement in in different leisure practices in adults. The instrument was formed based on the cultural leisure content (artistic, manual, physical, sports, intellectual, social, tourist, virtual and contemplation/leisure). The validation process was conducted with: a) content analysis by leisure experts, who evaluated the instrument for clarity of language and practical relevance, which allowed the calculation of the content validity coefficient (CVC); b) reproducibility test-retest with 51 subjects to calculate the temporal variation coefficient; c) internal consistency analysis with 885 participants. The evaluation presented appropriate coefficients, both with respect to language clarity (CVCt = 0.883) and practical relevance (CVCt = 0.879). The reproducibility coefficients were moderate to excellent. The scale showed adequate internal consistency (0.72). The EPL has psychometric quality and acceptable values in its structure, and can be used to investigate adult involvement in leisure activities.*

Key words *Leisure activities, Validation studies, Reproducibility of results*

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Introduction

Although the systematic study of leisure is contemporary, concerns about this dimension of human life begin, more clearly, from the emergence of the industrial society. In this context, the value of leisure emerges as a form of rescue and respect for the human being, which began to suffer degrading working conditions[1]. Leisure, therefore, is a complex and interdisciplinary phenomenon, which requires different approaches for its comprehension[2].

In Brazil, knowledge on leisure is gaining new perspectives. Initially with discourse based on human sciences, the studies were related to the field of sociology, education, and politics. In recent years, productions in other subject areas have been conducted, such as Physical Education, Psychology, and public health[3]. Thus, some recurrent themes within these studies include the relationship with health, the organization of the urban space for activities, people's motivation to adhere to leisure experiences, the management of free time, the barriers in becoming involved in activities, among others[4].

The concept of leisure can be understood in two manners[1,5]. The first concerns the leisure-work duality. Therefore, leisure is defined as a set of practices in which free and disinterested involvement occurs after social burdens, such as work and family[5]. In the second manner, within the context of psychology and behavior, leisure is understood as a human and cultural need lived during the time available[1]. Such a necessity can be satisfied in multiple ways, according to the values and interests of each individual or group, within a determined historical, social, and cultural context[1]. Therefore, leisure is not treated as something separate from work, rather, there is a relationship between the two, where both re-signify themselves[6]. Along this line of interpretation, different contents are listed, in order to better contextualize the various leisure activities such as those proposed by Dumazedier Dumazedier[7]: artistic, manual, physical and sports, intellectual, and social; Camargo[8]: touristic; and Schwartz[9]: virtual. Additionally, important researchers in the area add contemplation/leisure to this list, considering rest activities[5,6], as an important moment in leisure time.

Although leisure is related to several dimensions of the development of society, its importance for health is very evident[10-13]. Despite the above, the literature shows a significant appreciation for the sports content of leisure and a disregard for other contents. In addition, there is a shortage of validated instruments that consider the breadth of leisure content, as well as the amount of personal involvement/investment in leisure activities, especially when it comes to adult individuals[14-17].

Some instruments were developed for leisure assessment. However, most of these proposals are aimed at children[14,15] and adolescents[16,17], and others are in a foreign language, which represents an important challenge to be overcome. Therefore, there is a need to develop an instrument capable of covering the various dimensions related to leisure, focusing on adults, and is prepared in the Portuguese language, with clarity and ease of application.

Considering the above, this study aimed to propose the Leisure Practices Scale (EPL) and analyze the construct validity of the EPL, in order to promote the identification of preferences and involvement in practices experienced within the different leisure contexts in adults.

Methods

Three steps were conducted to analyze the validity of the instrument, including: a) content analysis (level of language clarity, practical relevance analyzed by specialists in the area); b) reproducibility, and c) internal consistency (Figure 1).

Participants

A total of 936 individuals in two groups participated in the study: group "A" had 51 adults that attended refresher courses at a university in

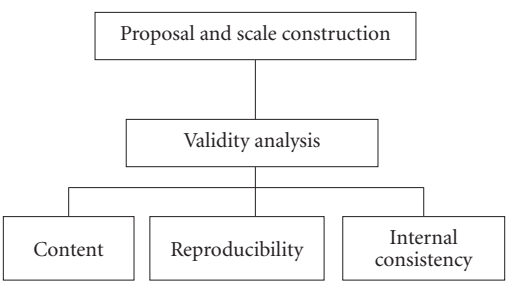

Figure 1. Process of construction and validity of the instrument (EPL).

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Greater Florianópolis, and had professions, such as teachers, health professionals, and trade professionals. The reproducibility of the scale was verified with these individuals. Group "B" was composed of 885 industry workers in the Greater Florianópolis, who have different functions. The internal consistency of the instrument was verified from the response of group B volunteers. The subjects from both groups had different levels of schooling and economic strata.

Instrument construction

For the development of this instrument, a revision of theoretical references on leisure was conducted[1-3,6-9,18,19]. Based on this bibliographical research, the items of the instrument were developed, considering systematization based on a theoretical and conceptual investigation. Thus, the different cultural contents were listed in order to better contextualize the various leisure activities.

The *artistic* content encompasses the artistic manifestations that deal with the imaginary, emotions, and feelings. The *intellectual* content is the contact with what is real, rational, and information. In the *physical and sports* aspect there is a predominance of sports and physical activities. *Manual* activities are characterized by the manipulation and transformation of objects and materials. The *social* content is concerned with relations in social life[6,7]. *Tourism* encompasses the interest in knowing new places and cultures through trips[8]. The use of technological resources, such as games, the Internet, and social networks is part of the *virtual* content[9]. Lastly, *contemplation/leisure* is associated with the time spent appreciating the beautiful and/or at rest[5,6].

This synthesis was organized in such a way as to ensure the visualization of the construct in question, and also to ensure that the items of the instrument were adequately represented, taking into consideration preferences and involvement in leisure activities without, however, resorting to a listing of specific activities. In addition, we sought to overcome the *Likert* scale format of other instruments, proposing a visual analogue scale that considers more response options, as well as respecting the individual perception of little or more involvement in certain practices.

It is worth noting that the scale of "always" to "never" used in the EPL is a voluntary and subjective criterion from person to person and from activity to activity. For example, "always" going to the gym is different from the "always" going to the theater. Therefore, we chose to use a scale of "zero" to "10" in order to facilitate engagement of each individual within the contexts analyzed.

Another goal of this construction was to propose an instrument of easy understanding and application that can be answered by people with different degrees of schooling, taking into consideration the broader contents of leisure and allowing the contemplation of examples in each content. The need for an adequate instrument for application in epidemiological studies, which require self-administered scales and adequate psychometrics is evident.

Validity of content

A preliminary version of the EPL was sent to PhD researchers, experts in the field of leisure studies, who judged questions about language clarity and practical relevance from the content validity criteria (CVC) proposed by Hernandez-Nieto[20].

In the semantic analysis of the instrument, eight items (leisure content) were proposed with an average of six examples of activities for each one. Thus, the content validity coefficient for language clarity (CVCcl) and the coefficient for practical relevance (CVCpp) of each content was calculated, as well as the content validity coefficient of language clarity and general practical relevance (CVCt)[20]. Six judges (n=6) used a scale from one (1) to five (5) points to evaluate these criteria (CVCcl and CVCpp) within the eight items, starting from "very little relevance/clarity" (answer 1) to "a lot of relevance/clarity" (answer 5). The cut-off point of 0.70 was used to determine satisfactory levels of CVCcl and CVCpp for each of the items, as well as for the CVCt of the instrument in general[20].

In addition, four questions were elaborated considering its presentation, objectives of the instrument, and adaptation for the Brazilian population from ages 18 to 60 years old. For each question the specialists had to respond with "yes", "in parts", or "no".

Reproducibility

The EPL reproducibility was analyzed using the Intraclass correlation coefficient (ICC). Data collection for the reproducibility evaluation was conducted in two stages: a) application of EPL; b) reapplication (test-retest), with an interval of seven to 10 days between the two evaluations. Group A participated in during phase. Intraclass

correlation coefficients above 0.50 are considered acceptable in literature[21]. Values between 0.50 and 0.69 are acceptable, from 0.70 to 0.79 values are good, from 0.80 to 0.89 they are optimum, and above 0.90 they are considered excellent[21].

Internal consistency

To analyze the internal consistency of the instrument, 885 workers from industries in the Greater Florianópolis, Santa Catarina, region participated in the study (Group B). In this phase, we evaluated how all the items within the instrument converge to a same construct. The values related to the internal consistency of the EPL were estimated using *Cronbach's alpha*.

Statistical Analysis

The semantic analysis of the content was conducted by the content validity coefficient (CVC) proposed by Hernandez-Nieto[20]. Reproducibility was analyzed with the Intraclass correlation coefficient (ICC) with intervals of seven to 10 days to observe the agreement between measurements, and the internal consistency was analyzed using *Cronbach's alpha*. The following values for the CVC ≥ 0.70[20], reproducibility ≥ 0.51[22], and internal consistency ≥ 0,70[23] were considered adequate. The analyzes were completed in the software *The Statistical Package for Social Sciences* (SPSS), version 20.0. A significance level of 5% was adopted.

Ethical aspects

The project was approved by the Ethics Committee for Research with Human Beings of the State University of Santa Catarina. All the mentioned participants were invited to participate in the study voluntarily and signed the Free and Informed Consent form.

Results

Table 1 shows the sociodemographic characteristics of the participants of groups "A" and "B". With group "A", the reproducibility of the EPL was evaluated with a test-retest ranging from 7 to 10 days between evaluations. The sample consisted of 51 individuals with a mean age of 28.9 years. There was a higher prevalence of men with a complete secondary education in this group. In group "B", the internal consistency of the instrument was evaluated. A total of 885 industrial workers with an average age of 31.1 years participated in this process. As with group "A", most of the participants had completed their secondary education; however, during this stage of the EPL assessment there was a greater representation among women.

Table 2 shows the averages of the expert's evaluation of the content of the construct. In this evaluation each content in the instrument was evaluated in relation to the language clarity and practice relevance (CVC). Area experts conducted the assessment judging each item on a five-point *Likert* scale. The area pairs considered the assessment of the instrument positive, coming close to the maximum score for all items.

From the average of the assessment for language clarity and practical relevance, the content validity coefficient (CVC) was calculated. Regarding the clarity of the language, the instrument had a CVCt = 0.883. For practical relevance, the coefficient was 0.879.

The relative frequencies of the overall responses to the instrument were expressed in Table 3. The question that had the most unanimous answers was that concerning the contents of leisure contemplated in the instrument. The question that deals with the examples of activities had a greater percentage of the answer "in parts". The only question that had a "no" response referred to the heading of the instrument. It is worth mentioning that all the suggestions made by the experts who indicated "in parts" or "no" were re-evaluated and appropriately adapted to the instrument.

The results for the reproducibility analysis and internal consistency are presented in Table 4. The coefficients of variation (test-retest) indicated acceptable reproducibility values, with no significant differences between the first and second evaluation for all items. In addition, this evaluation of the instrument indicated that the scale is easily understood and there were no doubts on the part of the participants regarding how to answer. The results of the internal consistency analysis had a *Cronbach's alpha* of 0.72.

Discussion

Studies on leisure in Brazil have been growing exponentially, especially with the creation of specialized research groups in this field[24]. However, physical activity practices in leisure have gained

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Table 1. Characterization of the sample in the evaluation stages of reproducibility and internal consistency.

Variables	Indexes	
	Reproducibility Group A	Internal Consistency Group B
Participants, n	51	885
Age, years	28.9(9.2)	31.1(8.5)
Sex, %		
Female	31.4	58.2
Male	68.6	41.8
Education, %		
Middle School	-	9.8
High School	78.4	57.7
College	15.7	22.0
Post-Graduate	5.9	10.4

n: absolute frequency; %: relative frequency.

Table 2. Analysis of the content validity coefficient performed by specialists in leisure studies.

Leisure content	Validity of content			
	Language clarity		Practical relevance	
	Mcl	CVCcl	Mpp	CVCpp
Artistic	4.33(0.82)	0.867	4.66(0.51)	0.933
Manual	4.40(0.90)	0.733	4.40(1.32)	0.733
Physical and sports	4.80(0.44)	0.800	4.80(0.45)	0.800
Intellectual	4.80(0.44)	0.800	4.83(0.41)	0.967
Social	4.83(0.40)	0.967	4.83(0.41)	0.967
Touristic	5.00(0.00)	1.0	5.00(0.00)	0.833
Virtual	4.83(0.41)	0.967	4.83(0.41)	0.967
Contemplation/rest	4.66(0.51)	0.933	4.16(1.32)	0.833
CVCt	-	0.883	-	0.879

Mcl – average of the experts assessment of language clarity; Mpp – average of the evaluation of the experts regarding the practical relevance; CVCcl – content validity coefficient for clarity and language; CVCpp – content validity coefficient for practical relevance; CVCt – content validity coefficient for total content.

Table 3. Expert assessment of the Leisure Practices Scale (EPL).

Question	Yes	In parts	No
1. In your perception does the instrument constitute a valid indicative in our language and culture for the investigation of the leisure contents of adults aged 18 – 60 years?	83.3%	16.7%	-
2. In your perception, are the contents of leisure clear and relevant with the purpose of the research?	100%	-	-
3. In your perception are the examples of leisure activities clear and represent the contents addressed?	33.3%	66.7%	-
4. In your perception, is the proposed heading for the questionnaire adequate?	83.3%	-	16.7%

more evidence and limit the magnitude of leisure, thus, deserving further re-evaluation[2]. Additionally, it is indispensable to understand leisure not simply within the scope of fun, consumerists practices, and entertainment, but rather it must be attributed as a social right established in the federal constitution, such as education, health, work, and housing[6]. Therefore, the con-

Table 4. Analysis of the Intraclass Correlation Coefficient (ICC).

Leisure Contents	Intraclass Correlation Coefficient (ICC)			
	R	Classification	IC95%	p-value**
Artistic	0.78	Good	0.64-0.87	<0.001
Manual	0.77	Good	0.63-0.86	<0.001
Physical-sports	0.95	Excellent	0.92-0.97	<0.001
Intellectual	0.72	Good	0.55-0.83	<0.001
Social	0.89	Optimum	0.82-0.94	<0.001
Touristic	0.70	Good	0.51-0.81	<0.001
Virtual	0.84	Optimum	0.74-0.91	<0.001
Contemplation/rest	0.57	Acceptable	0.35-0.73	<0.001

* p-value of *Cronbach's alpha;* **p-value of the Intraclass correlation test.

sensual evaluation of the specialists on the objectives and contents of the instrument justifies the relevance of this research, in order to amplify this cultural phenomenon and the understanding of this emerging demand for the area.

The distancing of leisure research from the areas of psychometrics can be derived from an initial process of legitimization of leisure as a field of scientific studies, which, in general terms, was consolidated in the area of sociology. Called the "sociology of leisure"[5], the first studies were conducted based on the need for knowledge and social control of the free time of workers in industrialized countries. This scientific root has made leisure studies focus on the field of social and human sciences. However, recent studies have defended the interdisciplinary character of leisure studies, and consider it a phenomenon that can be studied in several areas, such as public health (leisure and quality of life)[13], administration (public policies, spaces and facilities for leisure activities)[25], and psychology (motivation, barriers, and adherence to practice)[26].

Another aspect to be analyzed is that in Brazil, in terms of scientific production, many studies on leisure have not yet reached the level of maturity, consistency, and depth with which other areas approach certain issues. According to Alves et al.[27] the majority of studies in this field are restricted to reports of experiences, without necessarily presenting an in-depth theoretical basis. Furthermore, surveys, even though presenting a consistent discussion on leisure, do not promote a qualitative-quantitative advance in this field.

It is necessary to recognize the difficulty of classifying activities into the different leisure contents. In general, in order to classify these activities the goal of the practice must be ascertained. Moreover, this task is even more complex, since interests in leisure are established through subjective choices[6]. Thus, the meaning of each activity in leisure varies from person to person.

In spite of this, cultural content in leisure has been divided, predominantly, according to some common characteristics of the activities that contemplate them, even though this stratification is difficult to do, since an activity can pass through two or more contents. For example, in the practice of a collective physical activity, the social aspect is also found within the context of the activity.

According to activities exemplified in each content of the instrument, the criteria of scientific authenticity of the EPL were verified, considering its objectivity, reliability, and content validity. The validity coefficients CVCt for language clarity=0.883 and CVCt for practical relevance=0.879, the internal consistency (*Cronbach's alpha*), and the reproducibility (coefficient of temporal variation), calculated in this study are in accordance with the criteria admitted by literature[23]. These results reinforce the general interpretation that the items are appropriate and relevant. Furthermore, in the semantic analysis of content, important adaptations were included into the final instrument.

The instrument (Chart 1) can be used for research in different populations for the age group 18 to 60 years old, since currently the issue of temporality is more related to other social issues, such as income and living conditions, rather than with the age of the individual. Advances in access to health services and economic development of the country have allowed the growth of the life expectancy of the population in general. Thus, activities that until recently were restricted to people with more advanced ages, have now become timeless, such as manual activities of paint-

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ing and crafts, for example. However, for better understanding and application in populations over 60 years old, a semantic evaluation of the exemplified activities is suggested.

According to Requixa[18] the practices in leisure have as its main objective rest, fun, and personal and social development. Similarly, Marcellino[6] affirms that involvement in different contexts and interest groups is fundamental. Therefore, in order to achieve the objective of leisure, it is important to process activities in their different aspects, sometimes doing virtual activities, such as social networks, or sometimes participating in social commitments, such as family reunions.

Leisure experiences should not be restricted to a single content. Thus, the sum of the score obtained with the instrument indicates greater or lesser involvement of each individual or group in certain leisure practices. Individual or collective strategies can be established that contemplate less reported contents.

The area of Public Health focuses on the understanding of health processes in the social dimension, where, among other aspects, it is concerned with issues of social scope and collective practices of protection and health awareness[28]. This area also develops studies with the purpose of knowing the social reality and implementing new actions and public health practices[29,30]. Thus, there are many interfaces of this Science with Studies of Leisure.

Leisure is a sociocultural phenomenon that has an interdisciplinary understanding, and can be developed in different fields of research[6]. Since it is a comprehensive and complex phenomenon, it also includes knowledge on cultural contents in its interfaces with social well being, health, and quality of life, which are also focuses of the Public Health area.

Another goal of the Public Health area is to search for evaluative indicators and monitoring actions that promote health. Similarly, leisure

Chart 1. Leisure Practices Scale (EPL) for adults.

Mark with an X the number most appropriate to your involvement in activities during your leisure time, considering: **"0" for when you "NEVER" perform this activity and "10" for when you "ALWAYS" perform this activity**

Artistic: this content includes activities such as: going to the movies, theater, musical shows, participating in choir groups, attending art exhibits and cultural centers, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Manual: this content includes activities such as: gardening, cooking, painting, crafts and carpentry, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Physical/sports: this content includes activities such as: going to the gym, playing ball, hiking, running, cycling and martial arts, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Intellectual: this content includes activities such as: attending courses, reading, listening/composing songs, watching documentaries, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Social: this content includes activities such as: going out with friends, going to parties, visiting family, going to church, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Touristic: this content includes activities such as: traveling, participating in excursions and tours, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Virtual: this content includes activities such as: surfing the internet and/or social networks, playing video games or virtual games, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**
Contemplation/rest: this content includes activities such as: appreciating nature, the sunset, the moon, the stars and beautiful landscapes. Turning-off from tasks by relaxing and reflecting, among others.	**Never 0 1 2 3 4 5 6 7 8 9 10 Always**

activities favor health, since human involvement with hedonistic activities, chosen by free choice, based on affinity or personal skills and abilities, reinforces the perspective of development in the personal or social scope, impacting health and quality of life[6,13,19].

As found in Public Health, there is a focus on promoting health, in which the identification, analysis, and intervention of determinants of health processes and quality of life take part. Furthermore, strategies involving cultural and artistic aspects in an educational form may also be developed, as well as related actions in the field of leisure. In this field, health incentives and care, and quality of life are also used, offering opportunities and giving the social subject the opportunity to exercise their right to leisure, developing a culture and health education directly related to issues of social well being.

Another perspective within Public Health is the need to know the social reality, to help develop actions that lead to new habits. Therefore, this proposed instrument for studying leisure behaviors seeks to, in an effective way, assist in the development of a survey, to map and know the social reality of behavior and leisure habits. This initiative may also subsidize new actions in health education, as well as in the field of Public Health Management and Policies, as it is comprehensive and easy to apply. Its contribution may also resonate in the analysis of health practices and in articulations with other social practices.

It was not the focus of this research to analyze the activities in isolation and the explanatory power of each item. Moreover, the quality of the experience itself, as well as the factors associated with each practice, is not in question in this study. Therefore, in order to advance the study of leisure in different populations, these suggestions may be the results of future research. Additionally, since Brazil is a country with continental dimensions and a very large socio-cultural plurality, the exemplified activities in the scale for each leisure content can be adjusted taking into account the characteristics of each population to be investigated. Thus, it will be possible to classify the activities experienced in leisure in their different contents in specific populations.

From the validation procedures, we verified whether the EPL items proposed to analyze the preferences and involvement of adults in different aspects of leisure are adequate, have psychometric quality, and acceptable values in structure. Thus, further verifying whether it would be able to be used in research about the leisure contents of Brazilian adults, including epidemiological analyzes. The *Alpha* value found for the full scale reveals a desirable score of internal consistency of the complete instrument. This is an important predictor of the reliability and accuracy of these results. Such information is important for new research to be conducted guiding the leisure interests of different populations and broadening the reflections in different fields of study.

Through literature consultation, a trend was found of leisure studies distancing themselves from the area of psychometrics. This instrument contributes to supply an important demand in this field of study. Mapping leisure will allow us to understand how society identifies their expectations, indicating their needs and habits that reverberate in quality of life and public health. This search for explanations may guide new decision-making steps to address problems and gaps that are identified, in order to broaden the proposals of policies and primary health care, fostering the deepening of reflections in the field of leisure. Despite this, it is necessary to apply the scale in different populations and contexts in order to confirm the psychometric values.

Collaborations

RD Andrade worked on the design, collection, analysis, interpretation, and writing of the manuscript. GM Schwarts and GH Tavares worked on analysis, interpretation of results, and writing of the manuscript. CS Teixeira and A Pelegrini helped with the methodology, delimitation of the study, and critical review for approval of the article. EPG Felden advised all phases of the project, assisted in the analysis and interpretation of the results and writing. All authors approved the final version of the manuscript.

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