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Constituent elements and validity of lifestyle assessment tools in adults: an integrative review

Elementos constituintes e validade dos instrumentos avaliativos do estilo de vida em adultos: revisão integrativa

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ABSTRACT

The present study aimed to analyze the constituents and evidence of validity of evaluative instruments of lifestyle in adults. Integrative review, without temporal delimitation, with data collection in Science Direct, Cinahl, Scopus, Medline/Pubmed and Scielo. Eight studies were selected that used the Fantastic Lifestyle, Patient Experience Questionnaire, MEDLIFE, MLCDP, "prescribe healthy living" screening questionnaire, MOCHAD-10, KomPAN and CHAT. The most present domains were eating habits, physical activity, relationships, sleep, stress, recreation, well-being, sadness, and licit drug use (alcohol and smoking). Most of the instruments had good internal consistency and feasibility for application, however only one instrument was validated for Brazil and it is multidimensional, which makes it difficult to apply. It is concluded that the assessment of Lifestyle in adults is still an open field for research, since the different instruments analyzed have limitations, and there is no ideal and complete questionnaire for the assessment of healthy Lifestyle in adults.

Keywords: Lifestyle. Instruments. Questionnaires.

RESUMO

O presente estudo teve como objetivo analisar os constituintes e indícios de validade dos instrumentos avaliativos do estilo de vida (EV) em adultos. Revisão integrativa, sem delimitação temporal, com coleta de dados nas bases Science Direct, Cinahl, Scopus, Medline/Pubmed e Scielo. Foram selecionados oito estudos que utilizaram os questionários EV Fantástico, Questionário de experiência do paciente, MEDLIFE,

MLCDP, questionário de triagem “prescrever vida saudável”, MOCHAD- 10, KomPAN e CHAT. Os domínios mais presentes foram hábitos alimentares, atividade física, relacionamentos, sono, estresse, lazer, bem-estar, tristeza e uso de drogas lícitas (álcool e tabagismo). A maioria dos instrumentos tinha boa consistência interna e viabilidade para aplicação, contudo apenas um instrumento foi validado para o Brasil e este é multidimensional, o que o torna de difícil aplicação. Conclui-se que a avaliação do EV em adultos ainda é campo aberto para a pesquisa, pois os diferentes instrumentos analisados têm limitações, não havendo um questionário ideal e completo para avaliação do EV saudável em adultos.

Palavras-chave: Estilo de Vida. Instrumentos. Questionários.

Introduction

Currently, there is much talk about lifestyle theories, and it is suggested that health guidelines are shaped by relevant social, cultural, economic, historical and political factors. Thus, lifestyle is the “set of habits and customs influenced, modified, encouraged or inhibited by the prolonged process of socialization. These habits and customs include substance use (alcohol, tobacco, tea or coffee), nutritional habits, and exercise. They have relevant health implications and are often the subject of epidemiological investigation.” VE can be characterized by identifiable behavioral patterns, which can have a profound effect on the health of the population and is related to several aspects that reflect attitudes, values and opportunities in people's lives.

Given the importance that the topic assumes worldwide, in recent decades, changes in the population's living and health conditions have been noted to require engagement between individuals and health professionals for change to happen and be efficient. When realizing in daily professional life how difficult it is for individuals to positively change their VE with a view to preventing diseases or effectively following their own treatment, assessment instruments can support care planning. Such instruments can identify difficulties in adopting healthy lifestyle, characterize habits and assess the level of knowledge about healthy practices, directing health-promoting actions.

There is a recognized association between lifestyle and good quality of health, however it is not yet well-established which instruments are most suitable for assessing lifestyle, as in the literature there are few questionnaires that assess VE and there is no “gold standard” for measuring this construct. Despite the constant creation of new instruments, many do not have been adequately validated.

Therefore, it is necessary to know such instruments in detail, their items, domains, expected forms of assessment and, especially, their measurement properties, before using them, as the quality of the information provided by these instruments depends, in part, on their properties. psychometrics. In this way, instruments with different structures can be observed that even evaluate dimensions that are often different. Thus, the objective of this study was to analyze the constituents and evidence of validity of lifestyle assessment instruments in adults.

1 Method

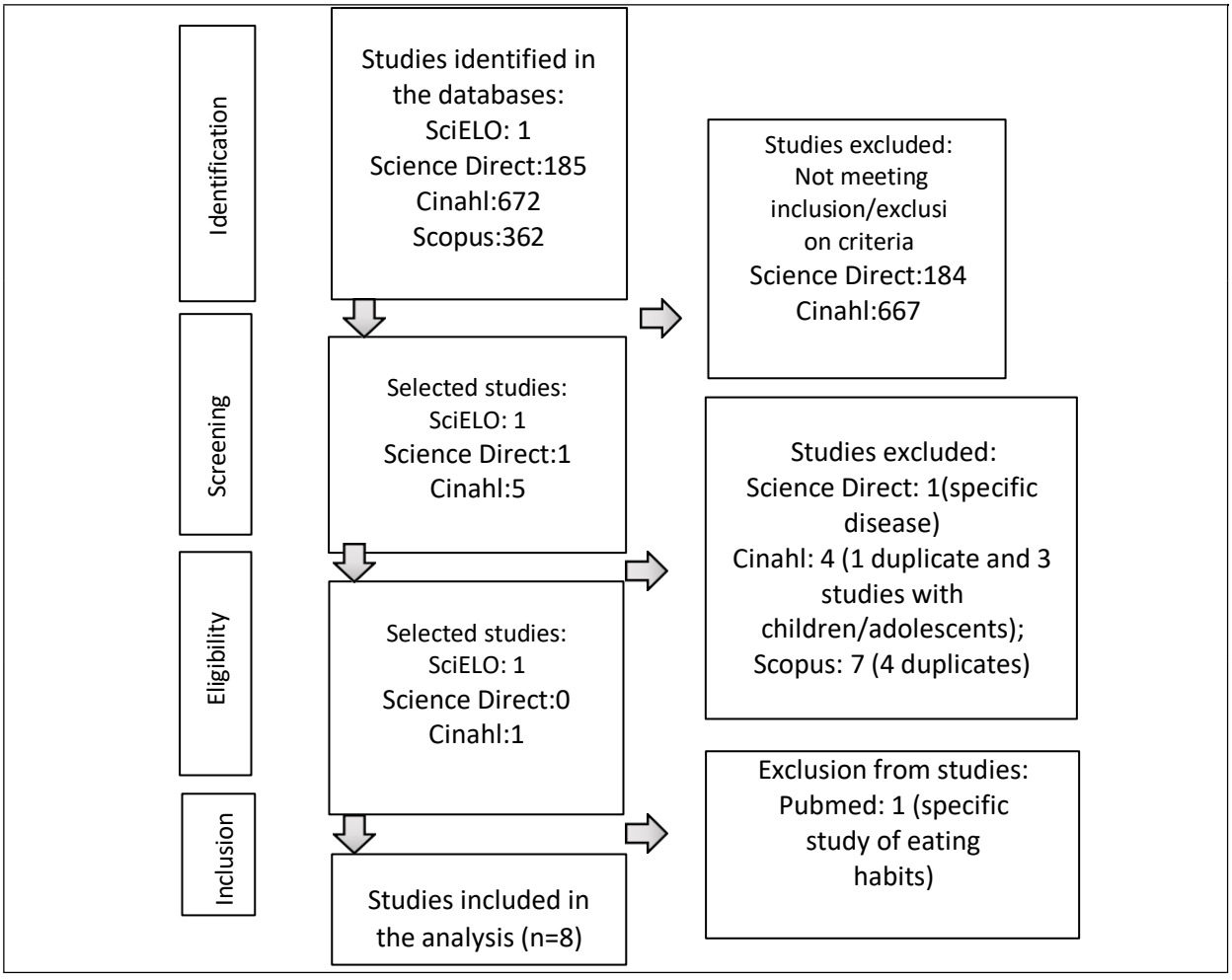
This is an integrative review of the literature on assessment instruments for lifestyle in adults, with organization and synthesis of the results obtained, in a systematic and orderly manner, contributing to the discussion on methods, research results and reflections already carried out in the area and on the carrying out future studies. The study carefully followed the six steps planned for this type of research: selection of guiding question; definition of the characteristics of the sample's primary research; selection of research that made up the sample; analysis of article findings; interpretation of results and report of the review in critical examination.

The formulation of the starting question for this review was based on the PVO strategy, being defined as follows: P (population) corresponds to “adults”; V (variable of interest) were the lifestyle assessment instruments; and O (outcome) the constituents and signs of validity of the instruments. Thus, the Integrative Review was carried out based on the question: what are the constituents and signs of validity of lifestyle assessment instruments in adults?

A search was carried out in the electronic databases Science Direct, Cinahl, Scopus, Medline/Pubmed and Scielo. The following descriptors were used: "Adult"; "Lifestyle"; "Validation Studies" according to Medical Subject Headings (Mesh) terminology. To systematize the search, the equation was created: "Adult" AND "Lifestyle" AND "Validation Studies". The search for studies took place from May to July 2019. The selection of articles was carried out by two researchers and the data were compared. The study inclusion criteria were: articles on instruments/questionnaires evaluating lifestyle in adults; available in full; in Portuguese, English or Spanish, without temporal delimitation. The following were excluded: literature or theoretical review, editorial and studies with only one lifestyle domain.

As a result of the searches, 1542 articles were found in the five databases, with their titles and abstracts being read, screening them for relevance and the property with which they responded to the objective of the study. After this first analysis, 25 articles were pre-selected. Then, the works were carefully read in full and a total of eight articles were selected for the study. To describe the searches, the PRISMA flowchart was used to explain how the search and selection of studies was carried out (Figure 1).

Figure 1 - Study selection flowchart. Fortaleza-Ceará-Brazil, 2020.



Source: prepared by the authors.

After searching the literature, selecting the articles and organizing the data, the translation, reading, interpretation and discussion of the results began to carry out the integrative review. The studies were analyzed descriptively to form two groups of results. The first consisted of elements characterizing the studies. To extract relevant data, the following variables were selected: type of study, study location, subjects, sample,

year of completion, data collection and lifestyle assessment instruments. The second group addressed the constituent domains, elements of validity and reliability.

To summarize the key elements from the questionnaires, a word cloud was created using WordArt. Since the study is a review, it was exempt from submission to a Research Ethics Committee.

2 Results

The result included eight articles with lifestyle evaluation instruments. Chart 1 summarizes information about the authors, year of publication, type of study, sample, place of data collection and what is the lifestyle assessment instrument.

Chart 1 – Characterization of scientific production on questionnaires to assess VE. Fortaleza – Ceará – Brazil, 2020.

Author	Year	Study design	Sample/Location	Instrument
Añez, RR; Reias, R. S.; Petroski, E.L.	2008	Validation study	62 young adults/ Brazil	Fantastic Lifestyle Quiz
Brauer, R. *et al*.	2018	Methodological study	164/57 French and 107 English	Patient Experience Questionnaire to Improve lifestyle Services in Primary Care
Bhatti, Zu *et al*.	2013	Methodological study	308 patients / Wales	Main Life Changes Decisions (MLCDP)
Sotos-Prieto, M. *et al*.	2014	Methodological study	988 individuals / Spain	Mediterranean lifestyle (MEDLIFE)
Bully, P. *et al*.	2016	Cross-sectional and validation study	126 patients / Spain	"Prescribe healthy living" questionnaire to detect healthy behaviors - PVS-SQ
Oliveira, D. *et al*.	2019	Cross-sectional study	3948 individuals/ United Kingdom	Motivation to Change Behavior for Dementia Risk Reduction Scale (MOCHAD-10)
Kowalkowska, J. *et al*.	2018	Cross-sectional study	954 individuals/ Poland	Beliefs, Eating Habits and Nutrition Questionnaire (KomPAN)
Goodyear-Smith, F.; Arroll, B.; Coupe, N.	2009	Validation study	755 patients/New Zealand	Case Finding and Help Assessment Tool (CHAT)

Source: prepared by the authors.

Regarding the characterization of studies, the publication period covered the years 2008 to 2019. In terms of study design, the studies were methodological/validation studies and cross-sectional studies. Two were conducted in Spain, one in Brazil, one in New Zealand, one in Poland, one in Wales, and one with the French and English. Most studies had significant samples to validate the instruments analyzed. In fact, lifestyle is one of the most important factors in maintaining health and prolonging an individual's life.

The following instruments were used to assess lifestyle Fantastic Lifestyle, Patient Experience Questionnaire, MEDLIFE, MLCDP, Prescribe Healthy Life Questionnaire, MOCHAD-10, KomPAN and CHAT. Chart 2 below shows the main domains, validity and reliability of the instruments analyzed.

Chart 2 - Main dimensions, validity and reliability of the lifestyle assessment questionnaires. Fortaleza – Ceará - Brazil, 2020.

Instrument	Description
Fantastic lifestyle	Dimensions/constituents: Family; Friends; Activity; Nutrition; Use of cigarettes/drugs; Alcohol; Sleep; Seat belt; Stress; Sex; Behavior; Discernment; Work; Leisure. Validity: agreement index about lifestyle between two applications in 3 groups was 80.7% and Kappa agreement index = 0.70. Reliability:Internal consistency of the instrument assessed by Cronbach's alpha, which was 0.69. Intraclass correlation between general pre- and post-test scores was R = 0.92 (p = 0.2).
Quizof patient experience	Dimensions/constituents: Accessibility to health programs and services; Program/service to support lifestyle changes; Information and support from the healthcare team; Relationship with professionals; Confidence in the nutrition and activity information that health professionals provide; Safety of healthcare professionals; Obstacles/difficulties in changing nutritional habits and practicing physical activity. Validity: Cognitive interview and pilot test for internal validation. Reliability: not measured.
MEDLIFE	Dimensions/constituents: Food; Physical activity; To sleep; Leisure; Sitting time; Relationships/friends/family; Smoke; Stress; Work; Self-perception of EVS. Validity: Validity ofcontent and internal consistency were calculated in linear regression and adjusted to determine β coefficients and quantify the association between each item. Average MEDLIFE index score for participants was 11.3. Reliability: MEDLIFE index showed good internal consistency using Cronbach's α coefficient (0.75).

MLCDP	Dimensions/constituents: Education; Career / Job / Career choice; Family / Relationships / Having children; Sexual relationship; Smoke; Drink alcohol; Leisure/travel; Clothing/Clothes/makeup; Socialization; Physical activity/playing sports/swimming; To drive; Health (presence of diseases). Validity: Kappa value of 0.81 ($p<0.0001$, CI=0.69-0.93) = almost perfect agreement. Reliability: Intraclass correlation coefficient (ICC) revealed an ICC of 0.707 ($p \leq 0.0001$; CI=0.61-0.78) = good reliability.
"Prescribe health living" questionnaire	Dimensions/constituents: Physical activity; Food (consumption of fruits and vegetables); Smoking. Validity: Spearman correlation for feasibility and reliability Reliability: Reliability and concurrent validity for fruit and vegetable consumption (r=0.59; r=0.50); tobacco use (r=0.76) as its overall performance in detecting unhealthy diet (accuracy=76.8%) and smokers (accuracy=86.8%) were good. Reproducibility (0.38), correlation between minutes of physical activity (0.34) for detecting physical activity was low.
MOCHAD-10	Dimensions/constituents: Health habits; Feelings; Motivation domains. Validity: Exploratory Factor Analysis (EFA) resulted in a parsimonious structure of 10 items and 2 factors (5 items each, factor loadings > 0.3) that explained 52.83% of the total variance. Reliability: Final scale with moderate-high reliability scores (Factor1α= 0.809; Factor 2α = 0.701; overall A = 0.785).
KomPAN	Dimensions/constituents: Diet; Smoking; Consumption of alcohol/energy drinks; Watching TV/computer (time spent); Physical activity; Health condition; Sleep; Diseases/comorbidities. Validity: kappa for VE items ranged from 0.42–0.96 and for nutrition knowledge level ranged 0.46–0.73. Reliability: Cross-classification agreement was 90.4% and ranged from 80.6% (self-assessment of diet during the week compared to the weekend) to 98.7% (current smoking); For the self-administered questionnaire it was 87.4% and ranged from 76.7% (time spent watching TV/computer use) to 96.1% (currently smoking);
CHAT	Dimensions/constituents: Inactivity; Smoking; Alcohol/drugs; Sadness/Depression; Anxiety; Stress. Validity: Validation against Standards for Reporting of Diagnostic Accuracy Statement (STARD) studies for diagnostic tests. Sensitivity ranged from 80-98% for most common conditions. Reliability: Depression, nicotine dependence, anxiety, alcohol consumption.

Source: prepared by the authors.

From the studies, the main constituents that structure the lifestyle evaluation instruments were identified, as presented below in the word cloud (Figure 2).

Figure 2 - Summary of the lifestyle assessment components of the questionnaires included in the study.
Fortaleza-Ceará-Brazil, 2020.

Source: prepared by the authors.

From the studies analyzed, several factors involved in the health of individuals were identified, ranging from intrinsic factors (sex, age and genetics) to extrinsic factors, which are associated with lifestyle, which is one of the most important components for good health. Self-perception of health, habits, use of alcoholic beverages and other drugs, work, physical activity, leisure, stress, well-being, diet and relationships predispose the individual to having or not a sedentary lifestyle.

3 Discussion

The lifestyle of populations is commonly emphasized, with promotion of anti-smoking campaigns, reduction of alcohol consumption, encouragement of healthy eating and regular practice of physical activities. With this, the creation and validation of instruments to evaluate the relationship between lifestyle, good quality of health and the effects of individual behavior on health stands out. Although there is positive evidence for health in relation to lifestyle and physical activity, it is observed that a relative portion of the population does not follow adequate lifestyle.

Among the main results of this study is the consensus that attitudes are necessary to maintain lifestyle: balanced diet, physical exercise, regular activities, avoiding alcohol and tobacco use, regular activities, avoiding alcohol and tobacco use, adequate rest, good sleep, leisure, not being stressed, maintaining good relationships with family/friends and psychological balance.

Lifestyle-related modifiable risk factors account for a large proportion of global deaths from cardiovascular diseases. Its measurement and monitoring are essential for planning strategies and actions to control unhealthy lifestyle, disease prevention and health promotion.

In relation to the instruments created and validated on lifestyle, the "Fantastic lifestyle" questionnaire stands out, with adequate internal and external consistency for assessing the lifestyle of young adults. Its use is recommended in primary care and in epidemiological studies. However, measuring the lifestyle construct is a difficult task because of the multiple dimensions that compose it and because of the difficulties that involve its direct measurement in an objective manner.

The self-administered patient experience questionnaire modified to evaluate lifestyle services in primary care has undergone rigorous development. Assessment of patient experience of lifestyle programs can be used to complement other data to assess the overall effectiveness of such programs. Lifestyle programs are increasingly offered digitally for diabetes prevention, cardiovascular disease prevention and/or weight control. This initial work to develop and test a new self-administered patient experience questionnaire for computer-delivered lifestyle programs was created from questions based on the perceptions of professionals and patients regarding critical issues to be evaluated to improve the quality of healthcare. These questions are self-administered and identify key aspects of the programs that may require improvement. Pilot testing in French and English suggested additional minor wording changes. However, the instrument has not yet been validated and its validation is necessary, including reliability analysis, item scaling and validation.

The study by BHATTI *et al*. aimed to develop, validate and evaluate the psychometric properties of the “Major Life Changing Decisions Profile” (MLCDP) questionnaire. The final version of the MLCDP questionnaire consisted of 29 easy-to-understand items and the application time was around six minutes. The study provides a method to assess the critical aspect of the impact of lifestyle on patients' lives and the long-term impact of MLCDs.

It is not designed to detect changes, but to determine the number of important life decisions that a patient feels have been affected. In addition, instrument design issues are complex and highly subjective.

Therefore, it is necessary to create a tool like the MLCDP, which is sensitive to clinical changes, as well as study a control group to see if there is a difference in the approach between people with and without chronic disease and to confirm the assumption that MLCDs are part of the normal course of life.

The Mediterranean Lifestyle Index (MEDLIFE) is an index derived from 28 items assessing an individual's adherence to Mediterranean lifestyle, including assessment of diet, physical activity and social interaction. It is the first index to include a general assessment of habits. Considering that MEDLIFE implies comprehensive assessment of lifestyle, it helps to make associations between Mediterranean diet, lifestyle and chronic disease. MEDLIFE is a valid instrument to measure adherence to Mediterranean lifestyle, which can be used in the epidemiological and clinical future.

The "Prescribe Healthy Life" questionnaire (PVS-SQ) proved to be a simple and practical tool for use in the real context of primary care, with guaranteed validity and reliability, but the physical activity dimension can be improved. The study highlights a critical gap in physical activity assessment, alleging a lack of easy-to-administer physical activity measures with robust instrument validity and reliability. The Motivation to Change Behavior for Dementia Risk Reduction (MOCHAD-10) instrument was chosen because the patients studied did not have the disease and the questionnaire assesses motivation to change lifestyle to reduce the risk of developing dementia. The study reports the factor structure and reliability of the scale scores after administration to a middle-aged sample in the United Kingdom. Their 27-item Australian version of the MCLHB-DRR was reduced to a short 10-item, robust and parsimonious two-factor scale version. Motivation for change integrates change in health-related risk behaviors. The study examines large-scale characteristics in culturally similar countries in Europe, but it is expected that future research will compare the questionnaire with another dietary assessment method or biomarkers.

The "Case-finding and Help Assessment Tool" (CHAT) is a short, validated, self-applicable tool with good acceptability. It is relevant for assessing lifestyle and mental health of adult patients in primary care. As a simple tool, with few resources and time, it allows professionals to quickly assess the important mental and social needs of their patients. The

help question reduces the number of false-positive findings and aid the identification of issues about which patients indicate concerns and their readiness to change.

The instruments presented in this study are based on questionnaires, in which individuals fill out and are evaluated for aspects related to individual parameters related to their lifestyle. An adequate lifestyle contributes to maintaining health, practicing physical activity, healthy eating habits, not smoking or alcohol, good relationships with family and friends, practicing safe sex, controlling stress, in addition to an optimistic view of life, elements with role significant in health promotion and disease prevention.

Conclusion

This work provided a preview of the validated lifestyle assessment instruments. Most of the instruments showed good reliability and feasibility, but only one questionnaire was validated for Brazil. The domains most associated with the study were eating habits, physical activity, relationships, sleep, stress, leisure, well-being, sadness, and use of legal drugs (alcohol and smoking).

This integrative review has made it possible to identify these instruments and the factors that make up lifestyle, but there is still no "gold standard", that is, a complete and objective instrument that provides certainty in the assessment of lifestyle. Therefore, we suggest conducting new studies with greater methodological rigor, aimed at providing greater validity and reliability in the assessment of lifestyle in Brazil.

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