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Concepts and Measures of Autonomy in Positive Psychology

Pozitif Psikolojide Özerklik Kavramları ve Ölçümleri

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Abstract

Autonomy has been the subject of study in psychology since its foundation as a science. However, with the shift in focus during the 1960s toward positive and health-promoting aspects of human beings—culminating in the emergence of positive psychology in the 1990s - the construct of autonomy gained more specific attention. Despite the substantial progress, recent research has highlighted issues such as using multiple scales to assess the same construct, increased instruments with low reliability, and a reduced capacity for generalization as negative consequences of excessive scale production. This has led to a challenge for new researchers in positive psychology: Which scale should I use to measure autonomy? The purposes of that study were (1) to identify and qualitatively summarize the available forms of autonomy measurement within positive psychology and (2) to evaluate the validation processes of these scales based on the evidence criteria proposed by the American Psychological Association. A narrative literature review followed the procedures outlined by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Ninety-eight scales or subscales were identified and categorized by language, target audience, measurement context, structural validation, and theoretical foundation. The studies primarily reported validation procedures related to internal structure and relationships with other variables, while none addressed the evaluation of consequences. That study advances the field of positive psychology by integrating diverse literature, providing a comprehensive and cohesive overview, and offering a practical tool to assist future researchers in selecting the most appropriate autonomy scale.

Keywords: Autonomy, Scale, Measure, Positive Psychology

Öz

Özerklik, psikolojinin bir bilim olarak kuruluşundan bu yana incelenen bir konu olmuştur. Ancak, 1960'larda insanın pozitif ve sağlığı teşvik edici yönlerine odaklanma eğilimi ile başlayan ve 1990'larda pozitif psikolojinin ortaya çıkışıyla sonuçlanan süreçte, özerklik kavramına daha spesifik bir ilgi gösterilmiştir. Kaydedilen önemli ilerlemelere rağmen, son zamanlarda araştırmacılar, aynı kavramı değerlendiren birden fazla ölçeğin kullanılması, düşük güvenilirliğe sahip araçların artışı ve aşırı ölçek üretiminin genelleştirme kapasitesini azaltması gibi sorunlara dikkat çekmiştir. Bu durum, pozitif psikolojide yeni araştırmacılar için "Özerkliği ölçmek için hangi ölçeği kullanmalıyım?" sorusu bağlamında güçlük yaratmıştır. Bu çalışmanın amaçları, (1) pozitif psikoloji bağlamında özerklik ölçümüne yönelik mevcut ölçekleri tanımlamak ve niteliksel olarak özetlemek ve (2) bu ölçeklerin geçerlik süreçlerini Amerikan Psikoloji Derneği tarafından önerilen kanıt kriterlerine göre değerlendirmektir. Çalışmada, Sistematik Derleme ve Meta-Analizler için Tercih Edilen Raporlama Öğeleri (PRISMA) çerçevesinde literatür taraması yapılmıştır. Doksan sekiz ölçek/ alt ölçek belirlenerek, dil, hedef kitle, ölçüm bağlamı, yapısal geçerlilik ve teorik temel açısından kategorize edilmiştir. Çalışmalarda ağırlıklı olarak iç yapı ve diğer değişkenlerle ilgili geçerlik prosedürleri rapor edilmekte ve hiçbirinde sonuçların değerlendirilmesine yönelik bir analiz bulunmamaktadır. Bu çalışma, kapsamlı ve bütüncül bir bakış açısı sunarak ve araştırmacılara en uygun özerklik ölçeğini seçmede yardımcı olarak pozitif psikoloji alanına katkıda bulunmaktadır.

Anahtar Kelimeler: Özerklik, Ölçek, Ölçüt, Pozitif Psikoloji

Introduction

Autonomy has been a central issue for Western European culture since the Greeks and Romans, who, through their tragedies, questioned whether men are autonomous subjects or whether they are subject to the whims of gods or fate.

Since the founding of Psychology as a scientific field, we can identify autonomy as an object of study across the most diverse theories. Psychoanalysis and behaviorism are classic psychological theories that conceptualized autonomy differently and still underlie scales used today. However, it is with the redirection of interest in psychology toward positive and health-promoting aspects of human beings, which began in the 1960s and culminated in positive psychology in the 1990s (Seligman & Csikszentmihalyi, 2000), that psychologists began to focus more specifically on the construct of autonomy. During this period, the first scales to measure autonomy emerged, focusing on work relationships (Hackman & Oldham, 1975). Since then, the number of scales designed to measure autonomy in the field of positive psychology has grown significantly. These are scales based on the most varied theories, which conceptualize autonomy differently, address different domains of individuals' lives, and focus on different age groups.

From one perspective, the increase in the development of autonomy scales represents a significant advance in understanding the phenomenon by providing information from different perspectives. On the other hand, the proliferation of these scales in the field of positive psychology makes it challenging to answer a simple question often asked by beginner researchers: Which scale should I use to measure autonomy?

Currently, the early-stage researchers are faced with a fragmented and complex field. The diversity of theories that underlie the creation of autonomy scales in positive psychology generates a complex spectrum of conceptions of autonomy. Autonomy is conceived from subjective and internal processes, such as the adolescent's individualization process (Steinberg & Silverberg, 1986), to a more functional and practical perception, such as the ability to decide about work performance (Hackman & Oldham, 1975; Inigo & Raufaste, 2019). In addition to this theoretical diversity, the autonomy scales are distinguished by the different measurement contexts and target audiences. For example, there are specific scales for contexts such as school (Goudas et al., 1994; Ryan & Connell, 1989) and scales that assess autonomy in various contexts (Deci & Ryan, 1985). There are also scales aimed at specific age groups, such as older people (Wiggins et al., 2008), and others that cover various stages of human development (Edmunds et al., 2006). Therefore, choosing an autonomy scale requires, at the very least, that researchers explore the complex matrix resulting from the combination of the scale's theoretical foundation, measurement context, and target audience. This challenge is even more prominent when considering that there are scales with the same theoretical foundation and measurement context, but that operationalize the autonomy construct in different ways.

Therefore, despite the advances represented by the diversity of autonomy scales available in positive psychology, selecting the appropriate instrument is a considerable challenge. Integrative review studies that combine theoretical and empirical aspects to offer a broad perspective (Whittemore & Knafl, 2005; Souza et al., 2010), would be a valuable tool for researchers in this diverse field. However, only meta-analysis studies are currently available, focusing either on specific scales or narrow contexts since the meta-analytic assumptions only support the analysis of studies with similar methodological characteristics (Souza et al., 2010).

In addition to this fragmented scenario, researchers have warned that the excessive production of psychological scales can have negative consequences for the advancement of knowledge due to the

use of different scales to assess the same construct, the high number of instruments with inadequate or outdated methodology (Clark & Watson, 1995; Simms & Watson, 2007) and the reduction in the power of generalizations (Clark & Watson, 1995; Flake & Fried, 2020).

To contribute to a broader, evaluative, and integrative view of the set of autonomy instruments available in the field of positive psychology, a narrative review of the literature was conducted with two objectives. The first was to locate and qualitatively summarize the forms of autonomy measurement available in positive psychology. The second was to qualitatively evaluate the validation process of autonomy scales based on the validation criteria proposed by the American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME) (Association et al., 1999).

Method

Conducting the review

An integrative literature review was conducted, a methodology that allows the summarization of empirical or theoretical works (Whittemore & Knafl, 2005) and enables the construction of an overview of a vast and complex field of knowledge (Souza et al., 2010), as is the case with autonomy. As has been indicated for narrative reviews (Murphy, 2012; Snilstveit et al., 2012), systematic and rigorous methodological procedures were used in conducting and reporting the review, which generally followed the procedures outlined by the preferred reporting items for systematic reviews and meta-analyses (PRISMA) (Liberati et al., 2009).

The identification of the texts that produced autonomy scales in the field of positive psychology was conducted in two stages. Initially, searches were performed in the electronic database Web of Science, and it was analyzed to determine whether the texts produced autonomy scales or, when using autonomy scales, cited the original studies. The second stage consisted of identifying whether the studies cited in the previous phase developed autonomy scales.

The searches were conducted in the electronic database Web of Science. In the first search, the terms "scale", "autonomy", "positive psychology" were used. The search was limited to titles, abstracts, keywords, publications made up to the year 2021, and finally, to the field of studies specified by the psychology database. Thus, in this first search, the following Search Query was employed (TS=scale and TS=autonomy and TS= "positive psychology" and SU=psychology and 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 2010 or 2009 or 2008 or 2007 or 2006 or 2005 or 2004 or 2003 or 2002 or 2001 or 2000 or 1999 or 1998 or 1997 or 1996 or 1995 or 1993 (Publication Years)). Through this search, 21 works were identified as potentially produced scales of autonomy from the field of positive psychology.

In the second search, to broaden our results, the terms "scale", "autonomy", and "well-being" were searched, considering that well-being is one of the most studied outcomes in the field of positive psychology. The research was restricted to the same parameters as before. Thus, in this search, the following Search Query was used (TS=scale and TS=autonomy and TS= "well-being" and SU=psychology and 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 2010 or 2009 or 2008 or 2007 or 2006 or 2005 or 2004 or 2003 or 2002 or 2001 or 2000 or 1999 or 1998 or 1997 or 1996 or 1995 or 1993 (Publication Years)). A total of 287 studies were identified, and after applying a language filter to include only English, Spanish, and Portuguese, this number was reduced to 270 papers."

Compiling the results from the two searches, three duplicate references were identified and removed, resulting in 288 studies to be analyzed in the next stage.

Article screening

The articles were analyzed to determine whether they developed autonomy scales and, if so, which references were cited. During this stage, the titles, abstracts, and methods of all identified articles were reviewed, applying four inclusion criteria: the study must have developed a scale or subscale explicitly named as autonomy, it must be a publised paper, it must be written in English, Portuguese, or Spanish, and it must be available online. Studies (n = 261) were excluded for various reasons, as shown in Figure 1. At the end of this stage, 30 texts that developed autonomy scales and 272 references cited by these texts when using autonomy scales were identified. Next, the citations (n = 272) were analyzed, of which 142 were duplicates, eight had been previously analyzed, and five did not provide bibliographic references. The procedure described above was repeated four more times, analyzing the references and their citations until no new references were identified. The final sample of this study comprised 98 texts that developed autonomy scales, which were then subjected to thematic analysis and validation appraisal.

Thematic analysis

The texts (n = 98) were then subjected to thematic analysis. The identified thematic units were grouped into five predefined categories: theoretical foundation, structure validation, measurement context, target audience, and language in alignment with the objectives of this study.

The Theoretical Foundation category was based on the conceptualization of autonomy provided by the authors of the scales. The authors' citations in defining autonomy were used to identify the theoretical basis upon which the scale's development was founded.

The Structure Validation category examined the factorial solution presented by the scales, labeling them as: unknown structure when no factor analysis was performed; unidimensional scale, where autonomy was identified as a single latent variable measured by several items sharing a single underlying factor (Reise et al., 2010; Segars, 1997); multifactorial scale, when autonomy was measured by different latent variables, each composed of various items (Reise et al., 2010; Segars, 1997); subscale, when autonomy was identified as one of several latent variables, each measuring a distinct construct; or theoretically inadequate, when the factorial solution did not reflect the theoretical basis.

In the Measurement Context category, thematic units were identified through the scale items, considering how the context influenced the operationalization of the autonomy construct. The scales were classified into four groups: specific context, multifaceted context, interchangeable context, and unspecified context. Scales that assessed autonomy in a specific context were those where the items designated autonomy for a single context (e.g., educational, occupational, or sports contexts). Scales categorized as assessing autonomy in a multifaceted context were those where the items measured autonomy across multiple areas of the participants' lives simultaneously. Scales that assessed autonomy in interchangeable contexts were those whose items could be adapted to measure autonomy according to the context of the researcher's interest. Finally, scales classified as evaluating autonomy in unspecified contexts were those where the items did not imply a specific context for the operationalization of autonomy, meaning the context was not a defining factor in the measurement.

In the Target Audience category, the thematic unit focused on identifying study participants' age range or average age. The target audiences were categorized into the following groups: children (under 12 years);

adolescents (12 to 17 years); emerging adults (18 to 25 years); adults (26 to 65 years); and elderly (over 65 years).

Finally, the Language category identified the language used to create or present the autonomy scale.

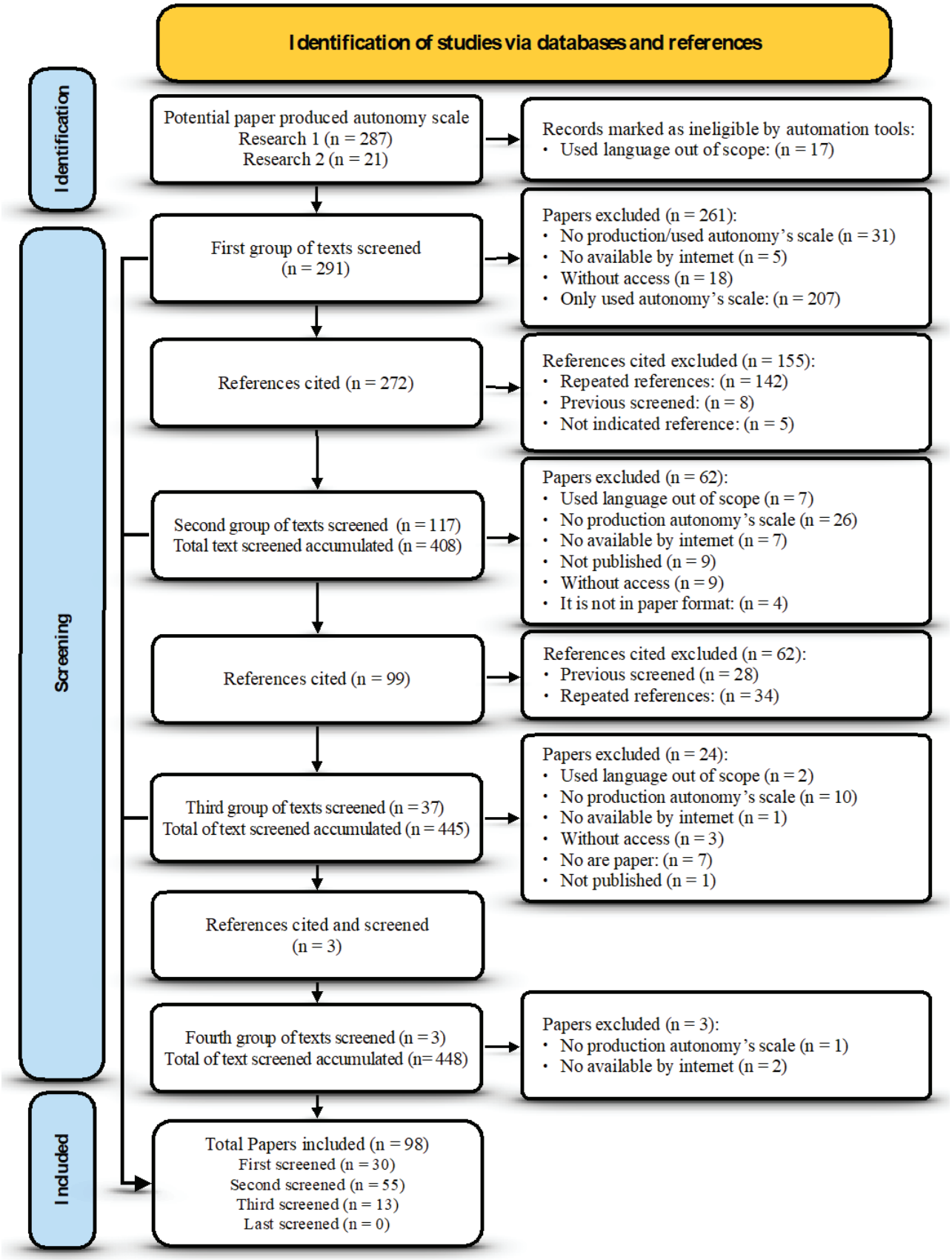

Figure 1. PRISMA adaptation: stages of the bibliographic review (Page et al., 2021)

Validation appraisal

Two psychology doctoral students independently assessed the validation procedures based on the evidence for each autonomy instrument. Following the methodology used in other studies (Yu & Kirk, 2009), an evaluation framework (Table 1) was applied, operationalizing the parameters of validity evidence based on test content, relations to other variables, internal structure, response processes, and testing consequences, as proposed by AERA, APA, & NCME (1999). The researchers assessed whether the autonomy scales presented each of the five parameters using a scale from 0 to 2 (0 = does not meet the criterion, 1 = partially meets the criterion, 2 = fully meets the criterion). The average scores for each item were calculated, and the level of agreement between the two reviewers was assessed using Cohen's Kappa, calculated in RStudio 7. Agreement levels were categorized as follows: values between 0.93 and 1.00 indicated excellent agreement; 0.81–0.92 indicated very good agreement; 0.61–0.80 indicated good agreement; 0.41–0.60 indicated fair agreement; 0.21–0.40 indicated slight agreement; 0.01–0.20 indicated poor agreement; and less than 0.01 indicated no agreement (Byrt, 1996).

Table 1. Criteria framework for quality appraisal of autonomy measurement tools

CVED	Description	Score		
		0	1	2
Test Content	Experts review the test items and rank them with respect to their relevance and appropriateness for measuring the construct and with respect to the adequacy with which the test content is congruent with the test objective. (Sireci & Sukin, 2013)	Not evaluated by reviewers	Has been evaluated by expert reviewers	It was evaluated by expert reviewers and target audience
Relations to Other Variables	The analysis of the relationships between test scores and constructs that are expected to be positively, negatively, or unrelated. (Sireci & Sukin, 2013)	Not assessed	Evaluated against at least one variable	Evaluated against more than one variable
Internal Structure	Refers to the dimensionality or underlying factor structure of an assessment: it originates from various sources, including the analysis of (a) internal consistency, (b) dimensionality, and (c) measurement invariance. (Sireci & Sukin, 2013)	None of the aspects analyzed	Looked at least one of the aspects	Looked at more than one aspect
Response Processes	It involves showing that examiners are engaging with the hypothesized constructs that the test is designed to measure when responding to test items. The researchers evaluated this through indirect methods such as cognitive interviews, think-aloud protocols, focus groups, or the analysis of answer patterns and item response time data. (Sireci & Sukin, 2013)	Not assessed	Evaluated with at least one method	Evaluated with more than one method
Consequences of Testing	Its refers to appraising both the intended and the unintended consequences associated with a testing program. (Sireci & Sukin, 2013)	It did not spell out the consequences	He explained at least one of the consequences	He explained both consequences

Note: CVED means Criterial Validity Evidence Based

Results

The study identified 98 scales or subscales published between 1975 and 2021 in ten languages. These scales referenced fourteen theories to conceptualize autonomy, with SDT being the most frequently cited (n = 64). The findings are organized according to the categories of analysis outlined earlier.

Epistemological foundation

The autonomy scales analyzed were based on fourteen theories, with the Self-Determination Theory (SDT) being the most referenced (n = 70). SDT posits that autonomy is one of the three basic human needs for full and healthy development. Autonomy as part of basic needs was used, for example, to develop the Basic Psychological Need Satisfaction Scale (Sheldon et al., 2001). Some studies measured autonomy as a basic need in specific contexts, such as the Adolescent Students' Basic Psychological Needs at School Scale (Tian et al., 2014), which considered autonomy in the school environment, the Basic Psychological Need Satisfaction at Work Scale (Deci et al., 2001) applied to the work environment,

and the Basic Psychological Needs in Exercise Scale (Vlachopoulos & Michailidou, 2006) in relation to physical activities.

When examined within the SDT framework, autonomy is presented as a construct composed of six different spectra of motivation, forming a continuum of autonomy that allows ~~for~~ identifying a locus of causality for voluntary behavior. These spectra include amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic regulation. This continuum was applied, for example, by the Comprehensive Relative Autonomy Index Scale (Sheldon et al., 2017). This theoretical framework was also applied to specific contexts, as evidenced in scales such as The Motivation at Work Scale (Gagne et al., 2010) and the Perceived Locus of Causality Scale – Revised (Vlachopoulos et al., 2011).

Psychological Well-Being was the second most cited theoretical framework (n = 6) among the scales analyzed. Ryff (1989), in developing the Psychological Well-Being Scale, conceptualized autonomy as a process of self-determination and internal regulation of behavior, resisting enculturation. This allowed the subject to develop an internal locus of evaluation, free from the approval of others, enabling a sense of liberation from collective impositions. In more recent work, co-authored by Ryff, autonomy is more concisely defined as the "quality of self-determination, independence, and internal regulation of behaviors" (Clarke et al., 2001, p. 80).

The CASP-19 scale (Hyde et al., 2003) and its shortened version, CASP-19 Reduced 12 (Wiggins et al., 2008), were based on Maslow's theory, which conceptualizes autonomy as "the right of an individual to be free from the unwanted interference of others" (Patrick et al., 1993).

The Job Diagnostic Survey (Hackman & Oldham, 1975) cites the works of Turner and Lawrence (1965) and Hackman and Lawler (1971) as their theoretical foundation. These works propose a theory in which three psychological states (experienced meaningfulness of the work, experienced responsibility for the work outcomes, and knowledge of the results of work activities) are necessary to achieve positive work outcomes. These psychological states are created through five "core" job dimensions, one of which is responsibility at work, enhanced by autonomy. Hackman and Oldham (1975) define autonomy as "the degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and determining the procedures to be used in carrying it out" (p. 162). The Job Diagnostic Survey - Revised (Idaszak & Drasgow, 1987) similarly addresses organizational characteristics, originally postulated by Hackman & Oldham (1974), as precursors to worker outcomes.

The Super-Leadership Scale (Muller et al., 2013) is based on the theory of self-leadership proposed by Manz (1986), which posits that facilitating personal autonomy and responsibility operationalizes the super-leadership construct. This is characterized by a leader's ability to delegate responsibilities to employees. Lastly, in the organizational domain, the Work Characteristics Scale (Toppinen-Tanner & Kalimo, 2003), referencing the works of Elo, Leppänen, & Lindström (1992), does not directly conceptualize autonomy but measures it through items addressing temporal freedom and other workplace factors.

Autonomy based theoretically on psychoanalysis is conceptualized as a process of individualization during adolescence, where the adolescent abandons paternal dependence and previous self-conceptualizations, a conception used in the Emotional Autonomy Scale (Steinberg & Silverberg, 1986). Also grounded in psychoanalysis, The Autonomy Scale (Bekker, 1993) views autonomy as an outcome of ego development, which psychologically separates individuals from the rest of the world and has distinct gender implications, leading to differentiated autonomy experiences between genders. Similarly, the Autonomy-Connectedness Scale (ACS–30) (Bekker & van Assen, 2006), grounded in neoanalytic theory, also analyzes autonomy as a process beginning in adulthood, distinguishing between genders.

Table 2. General information about the Autonomy Scales included in the study

Theory	Scale/Sub-scale	Status	Context	Target public	Language	Factors	Items	TC	RV	SI	RP	CT
Self-Determination Theory	Moreno-Murcia et al., 2020	Scale	School	Child	Spanish	1	11	2	2	2	0	0
Self-Determination Theory	Black & Deci, 2000	Scale	School	Undergraduates	English	2	12	0	1.5	1	0	0
Self-Determination Theory	Ryan & Connell, 1989	Scale	School	Student from Grades 3 to 6.	English	2	26	0.5	2	2	0	0
Self-Determination Theory	Williams & Deci, 1996	Scale	School	Undergraduates	English	2	13	0	2	2	0	0
Self-Determination Theory	Goudas et al., 1994	Scale	School	Adolescent	English	NI	18	0.5	1	1.5	0	0
Self-Determination Theory	Vlachopoulos et al., 2011	Scale	School	Child to emerging adult	Greek/ English	5	19	0.5	2	2	0	0
Self-Determination Theory	Ferriz et al., 2015	Scale	School	Adolescent to emerging adult	Spanish	6	24	2	1.5	2	0	0
Self-Determination Theory	Gordeeva et al., 2020	Scale	School	Child	Russian	7	26	0.5	2	2	0	0
Self-Determination Theory	Vallerand et al., 1992	Scale	School	Emerging adult	French/ English	7	28	2	0	2	0	0
Self-Determination Theory	Vallerand & Bissonnette, 1992	Scale	School	Emerging adult	French	NI	36	0	0	1	0	0
Self-Determination Theory	Balaguer et al., 2009	Scale	Sport	Adolescent to adult	Spanish	1	15	0.5	1.5	2	0	0
Self-Determination Theory	Reinboth et al., 2004	Subscale	Sport	Adolescent	English	3	15	0	2	2	0	0
Self-Determination Theory	Mullan et al., 1997	Scale	Sport	Adult	English	4	15	0	0	2	0	0
Self-Determination Theory	Markland & Tobin, 2004	Scale	Sport	Adult	English	5	18	0	0	2	0	0
Self-Determination Theory	Pelletier et al., 2013	Scale	Sport	Adult	English	6	18	0.5	2	2	0	0
Self-Determination Theory	Pelletier et al., 1995	Scale	Sport	Emerging adult	English	7	28	1.5	2	2	0	0
Self-Determination Theory	Gagne et al., 2003	Scale	Sport	Child to emerging adult	English	NI	15	0	2	0.5	0	0
Self-Determination Theory	Sansinenea et al., 2020	Scale	Interchangeable	Adult	Spanish/ English	1	3	0	2	1	0	0
Self-Determination Theory	Gore & Cross, 2006	Scale	Interchangeable	Undergraduates	English	4	8	0	2	2	0	0
Self-Determination Theory	Sheldon et al., 2017	Scale	Interchangeable	Emerging adult	Russian/ English	6	24	0.5	2	2	0	0

Table 2. General information about the Autonomy Scales included in the study [Continued]

Theory	Scale/Sub-scale	Status	Context	Target public	Language	Factors	Items	TC	RV	SI	RP	CT
Self-Determination Theory	Reis et al., 2000	Scale	Interchangeable	Adolescent to elderly	English	NI	12	0	2	0	0	0
Self-Determination Theory	Gagne et al., 2010	Scale	Labour	Emerging adult to elderly	French/ English	4	12	0	2	2	0	0
Self-Determination Theory	Gagne et al., 2015	Scale	Labour	Emerging adult to adult	English/ French/ Dutch	5	19	0.5	2	2	0	0
Self-Determination Theory	Deci & Ryan, 1985	Scale	Multifaceted	Undergraduates	English	NI	36	1.5	2	2	0	0
Self-Determination Theory	Chua & Koestner, 2008	Scale	Not specified	Not informed	English	NI	3	0	1.5	0	0	0
Self-Determination Theory	Gaine & La Guardia, 2009	Scale	Not specified	Adolescent to adult	English	2	118	0	2	2	0	0
Self-Determination Theory	Igreja et al., 2000	Scale	Not specified	Adult	French/ English	2	14	0	2	2	0	0
Self-Determination Theory	Weinstein et al., 2012	Scale	Not specified	Adolescent to adult	English	3	15	1.5	2	2	0.5	0
Self-Determination Theory	Zhang et al., 2013	Scale	Not specified	Emerging adult to adult	English	3	20	0	2	2	0	0
Self-Determination Theory	Pelletier et al., 1998	Scale	Not specified	Adolescent to elderly	English	6	24	0	2	2	0	0
Self-Determination Theory	Blais et al., 1990.	Scale	Not specified	Adult	French	NI	21	1.5	2	0.5	0	0
Self-Determination Theory	Sanchez, 2010	Scale	Not specified	Emerging adult to adult	English	1	2	0	2	1	0	0
Self-Determination Theory	Sheldon, 1995	Scale	Not specified	Undergraduates	English	NI	10	1.5	2	1.5	0	0
Self-Determination Theory	Ryan et al., 1993	Scale	Not specified	Adolescent to adult	English	2	12	0	2	2	0	0
Self-Determination Theory	Battistich et al., 1997	Subscale	School	Student's of elementary schools	English	1	38	0	1.5	2	0.5	0
Self-Determination Theory	Holzer et al., 2021	Subscale	School	Child to emerging adult	German	3	9	1	2	2	0	0
Self-Determination Theory	Jenkins-Guarnieri et al., 2015	Subscale	School	Undergraduates	English	3	13	0.5	0.5	2	0	0
Self-Determination Theory	Murcia et al., 2008	Subscale	School	Students	Spanish	3	12	2	1.5	2	0	0

Table 2. General information about the Autonomy Scales included in the study [Continued]

Theory	Scale/Sub-scale	Status	Context	Target public	Language	Factors	Items	TC	RV	SI	RP	CT
Self-Determination Theory	Van den Broeck et al., 2010	Subscale	Labour	Emerging adult to adult	Dutch/ English	3	18	1	2	2	0	0
Self-Determination Theory	Inigo & Raufaste, 2019	Subscale	Labour	Adult to elderly	English/ French	7	21	0	2	2	0	0
Self-Determination Theory	Huyghebaert-Zouaghi et al., 2020	Subscale	Labour	Adult	English/ French	9	37	0.5	2	1.5	0	0
Self-Determination Theory	Grolnick et al., 1991	Subscale	Not specified	Children in grades 3 through 6	English	4	21	0	2	2	1	0
Self-Determination Theory	Schiffrin et al., 2014	Subscale	Not specified	Emerging adult	English	2	15	0	2	2	0	0
Self-Determination Theory	Artiran et al., 2020	Subscale	Not specified	Adolescent	Turkish/ English	3	51	1.5	2	2	0	0
Self-Determination Theory	Girelli et al., 2019	Subscale	Not specified	Adolescent	English/ Italian	3	12	1.5	1.5	2	0	0
Self-Determination Theory	La Guardia et al., 2000	Subscale	Not specified	Undergraduates	English	3	9	0	2	1	0	0
Self-Determination Theory	Baldwin & Caldwell, 2003	Subscale	Not specified	Adolescent	English	5	20	1	0	2	0.5	0
Self-Determination Theory	Neubauer et al., 2020	Subscale	Not specified	Emerging adult	German	6	18	0	2	2	0	0
Self-Determination Theory	Sheldon & Hilpert, 2012	Subscale	Not specified	Undergraduates	English	3	18	0	2	2	0	0
Self-Determination Theory	Sheldon et al., 2001	Subscale	Not specified	Undergraduates	English/ Korean	9	30	0	1.5	1.5	0	0
Self-Determination Theory	Smits et al., 2010	Subscale	Not specified	Adolescent	Dutch	NI	18	0	2	0.5	0	0
Self-Determination Theory	Chen et al., 2015	Subscale	Not specified	Adolescent to adult	English/ Chinese/ Dutch/ Spanish	6	24	0.5	2	2	0	0
Psychological well-being/ Self-Determination Theory	Segerstrom et al., 2021	Subscale	Not specified	Adult to elderly	English	NI	3	0	2	0.5	0	0
Psychological well-being	Clarke et al., 2001	Subscale	Not specified	Elderly	English	6	18	0	0	2	0	0
Psychological well-being	Loera-Malvaez et al., 2008	Subscale	Not specified	Adolescent	Spanish	4	34	0.5	0	2	0	0
Psychological well-being	Viejo et al., 2018	Subscale	Not specified	Emerging adolescent to adult	Spanish	4	20	0.5	1	2	0	0
Psychological well-being	Ryff, 1989	Subscale	Not specified	Emerging adult to elderly	English	6	120	0.5	2	1.5	0	0
Psychological well-being	Merino & Private, 2015	Subscale	Not specified	Emerging adult to elderly	Spanish	11	33	1.5	2	2	0	0

Table 2. General information about the Autonomy Scales included in the study [Continued]

Theory	Scale/Sub-scale	Status	Context	Target public	Language	Factors	Items	TC	RV	SI	RP	CT
Self-Determination Theory	Tian et al., 2014	Subscale	School	Emerging adult to adult	Chinese	3	15	0.5	2	2	0	0
Self-Determination Theory	Conesa & Dunabeitia, 2021	Subscale	School	Students	Spanish/ English	4	17	0	1	2	0	0
Self-Determination Theory	Bartholomew et al., 2011	Subscale	Sport	Adolescent	English	3	12	2	2	2	0	0
Self-Determination Theory	Hodge et al., 2008	Subscale	Sport	Emerging adult to adult	English	3	8	0	1	1	0	0
Self-Determination Theory	Ng et al., 2011	Subscale	Sport	Adolescent to adult	English	5	20	1.5	2	2	0	0
Self-Determination Theory	Vlachopoulos & Michailidou, 2006	Subscale	Sport	Emerging adult to adult	Greek	3	12	1.5	1	2	0	0
Self-Determination Theory	Wilson et al., 2006	Subscale	Sport	Emerging adult	English	3	18	1	2	2	0	0
Self-Determination Theory	Bhavsar et al., 2020	Subscale	Sport	Adolescent	English	6	29	0.5	2	2	0	0
Self-Determination Theory	Edmunds et al., 2006	Subscale	Sport	Adolescent to adult	English	NI	21	0	2	1.5	0	0
Self-Determination Theory	Wilson et al., 2006	Subscale	Sport	Emerging adult to adult	English	NI	3	0	1.5	1.5	0	0
Self-Determination Theory	Philippe et al., 2012	Subscale	Interchangeable	Adult	English	3	6	0	2	2	0	0
Self-Determination Theory	Longo et al., 2016	Subscale	Interchangeable	Emerging adult to adult	English	6	18	2	2	2	0	0
Self-Determination Theory	Kasser et al.., 1992	Subscale	Labour	Emerging adult to elderly	English	2	15	0	2	0.5	0	0
Self-Determination Theory	Baard et al., 2004	Subscale	Labour	Employees	English	3	23	0	2	0	0	0
Self-Determination Theory	Brien et al., 2012	Subscale	Labour	Emerging adult to elderly	French/ English	3	12	0	2	2	0	0
Self-Determination Theory	Deci et al., 1989	Subscale	Labour	Employees	English	3	13	0	2	1	0	0
Self-Determination Theory	Deci et al., 2001	Subscale	Labour	Adult	English/ Bulgarian	3	21	0.5	2	1.5	0	0
Self-Determination Theory	Rasskazova et al., 2016	Subscale	Labour	Emerging adult to elderly	Russian/ English	3	9	0	2	1	0	0

Table 2. General information about the Autonomy Scales included in the study [Continued]

Theory	Scale/Sub-scale	Status	Context	Target public	Language	Factors	Items	TC	RV	SI	RP	CT
Psychoanalysis	Bekker, 1993	Scale	Not specified	Emerging adult to adult	Dutch/ English	3	42	0	2	2	0	0
Psychoanalysis	Steinberg & Silverberg, 1986	Scale	Not specified	Child to adolescent	English	4	20	0	2	1	0	0
Neoanalytical	Bekker & van Assen, 2006	Scale	Not specified	Emerging adult to adult	Dut/ English	3	30	0	2	2	0	0
Paradigmatic Complementarity Model	Bernardo & Branco Vasco, 2015	Subscale	Not specified	Emerging adult to adult	Portuguese	WT	14	0	2	2	0	0
Maslow	Wiggins et al., 2008	Subscale	Not specified	Elderly	English	3	12	1	0	2	0	0
Maslow	Hyde et al., 2003	Subscale	Not specified	Elderly	English	5	19	2	1	2	0.5	0
Literature Review	Bernal Romero et al., 2020	Scale	Not specified	E.Adolescent to adult	Spanish	4	19	1.5	0	2	0	0
Literature Review	Beckert, 2007	Scale	Not specified	Emerging adult	English	5	27	2	1	2	0.5	0
Literature Review	Morgeson & Humphrey, 2006	Subscale	Labour	Adult	English	21	77	0	2	2	0	0
Literature Review	Hackman & Oldham, 1975	Subscale	Labour	Adult	English	NI	21	0	1	1.5	0	0
Literature Review	Sher-Censor et al., 2011	Subscale	Not specified	Child to adolescent	English/ Spanish	NI	16	0.5	2	0.5	0	0
Hackman and Oldham's theory of job charac- teristics	Idaszak & Drasgow, 1987	Subscale	Labour	Professionals/ workers	English	5	15	0	0	2	0	0
Grounded Theory	Power et al., 2005	Subscale	Not specified	Elderly	$	6	24	1	0	2	0	0
Grouded Theory	DeRosa et al., 2011	Subscale	Not specified	Adolescent / Emerging adult	English	4	21	2	2	2	0	0
Coubalt's Theory	Algrantí & Santacana, 1984	Scale	Not specified	Adolescent	Spanish	NI	28	0	1	0	0	0
Choicework theory	Leontiev et al., 2020	Subscale	Interchangeable	Emerging adult to Adult	Russian	4	23	0	2	2	0	0
Ad hoc	Maldonado Briegas et al., 2020	Subscale	School	Adolescents	Sp/English	1	10	0	1	1	0	0
Ad hoc	Toppinen-Tanner & Kalimo, 2003	Subscale	Labour	Adult	Philands	NI	17	0	2	0.5	0	0
Ad hoc	Venhoeven et al., 2016	Subscale	Not specified	Adolesc to adult	Dutch	NI	5	0	2	0.5	0	0
Self-leadership Theory	Muller et al., 2013.	Subscale	Labour	Adult	Ger/Engl	2	12	0	2	1	0	0
Schalock and Verdugo Model	Gómez et al., 2008	Subscale	Not specified	E.adult to elderly	Spanish	8	57	1	0	2	0	0
Baumrind'sauthoritative parenting style	Mageau et al., 2015	Subscale	Not specified	Emerging adult	French	2	24	0.5	2	2	0	0

Note. TC = Test Content; RV = Relations to Other Variables; IS = Internal Structure; RP = Response Processes; CT = Consequences of Testing;NI = Not indicated; WT = Without theoretical adequation. $ = German, English, Spanish, Danish, French, Czech, Norwegia, Hebrew, Japanese, Chinese, Portugues, Turkish, Lithuanian.

The Needs Satisfaction Regulation Scale (Bernardo & Branco Vasco, 2015) was based on the Paradigmatic Complementarity Model (Vasco, 2009). This model identifies seven need pairs that influence psychological well-being, with autonomy as the capacity for self-determination and differentiation and proximity as the ability to form and maintain intimate relationships.

Some instruments approached autonomy as an aspect of the relationship between adolescents and parents, as in the case of The Perceived Parental Autonomy Support Scale (Mageau et al., 2015) based on the authoritative parenting style proposed by Baumrind (1971). In this framework, autonomy support, as opposed to parental control, is one of the three critical components for predicting the healthy development of adolescents. Specifically, parental autonomy support is described as "showing consideration for young adults' distinct internal frame of reference, showing respect for their unique needs and feelings in the parental relationship" (Mageau et al., 2015, p. 252). The Scales of Promotion of Psychological Autonomy and Psychological Control (Sher-Censor et al., 2011), based on Grotevant and Cooper's (1998) studies, also address parental relationships, with psychological autonomy viewed as supporting adolescent self-exploration and self-assertion. The theoretical framework of the Cuestionario EDPSI-74 (Algrantí & Santacana, 1984) proposes that psychosocial maturity, which occurs during adolescence, consists of three dimensions. Behavioral autonomy includes initiating actions such as dressing, choosing friends, personal care, and travel planning (Algrantí & Santacana, 1984). Continuing the focus on adolescent autonomy, the Transition to Adulthood Autonomy Scale (Bernal Romero et al., 2020) takes a more complex view. Its theoretical foundation presents autonomy as a lifelong developmental process shaped by relationships with others, involving reflection on one's life, making independent decisions, accepting consequences, and practicing self-eco-organization.

The FUMAT Scale (Gómez et al., 2008) was grounded in the theoretical model of quality of life proposed by Schalock and Verdugo (2002/2003). Quality of life is presented as a multidimensional state of well-being, with one of the dimensions being self-determination, which includes indicators such as autonomy, decision-making, goal-setting, and personal preferences (Gómez et al., 2008). The Subjective Quality of Choice Inventory (Leontiev et al., 2020) is based on the conceptualization of work choice. According to the authors, work choice is an active process involving cognitive effort, motivation, energy expenditure, and the use of internal and external resources. In this conceptualization, autonomy is understood as the cognitive dimension of the choice process related to the experience of decision-making.

The Eudaemonic Well-Being Scale (Segerstrom et al., 2021) is theoretically based on SDT and Psychological Well-Being (PWB) frameworks. According to SDT, autonomy is defined as the experience of self-organization and alignment of behavior with the self. In the PWB framework, autonomy is linked to self-determination and independence.

The Cognitive Autonomy and Self-Evaluation (Beckert, 2007) was developed using the grounded theory approach to measure adolescent cognitive autonomy, which is composed of five categories: independent decisions; voicing educated and appropriate opinions; weighing the influence of others on thinking; considering consequences; and self-evaluating practices. The WHOQOL-OLD Scale (Power et al., 2005) was produced from focus groups conducted in 21 different countries with the objective, among others, of identifying what would be necessary for the quality of life of the elderly. Of the items constructed from these focus groups' contributions, four are designed to measure autonomy, such as: "People around you are respectful of your freedom" (Power et al., 2005, p. 2211). Also produced from the focus group methodology, the Health Competence Beliefs Inventory (DeRosa et al., 2011) is aimed at adolescents or young adults diagnosed with childhood cancer and defines autonomy as adolescents' belief regarding their parents' independence in health care and in general.

The Motives Questionnaire (Inigo & Raufaste, 2019) is based on the Reversal Theory (Apter, 1982),

conceptualizing autonomy specifically for this scale as the sense of control in research activity.

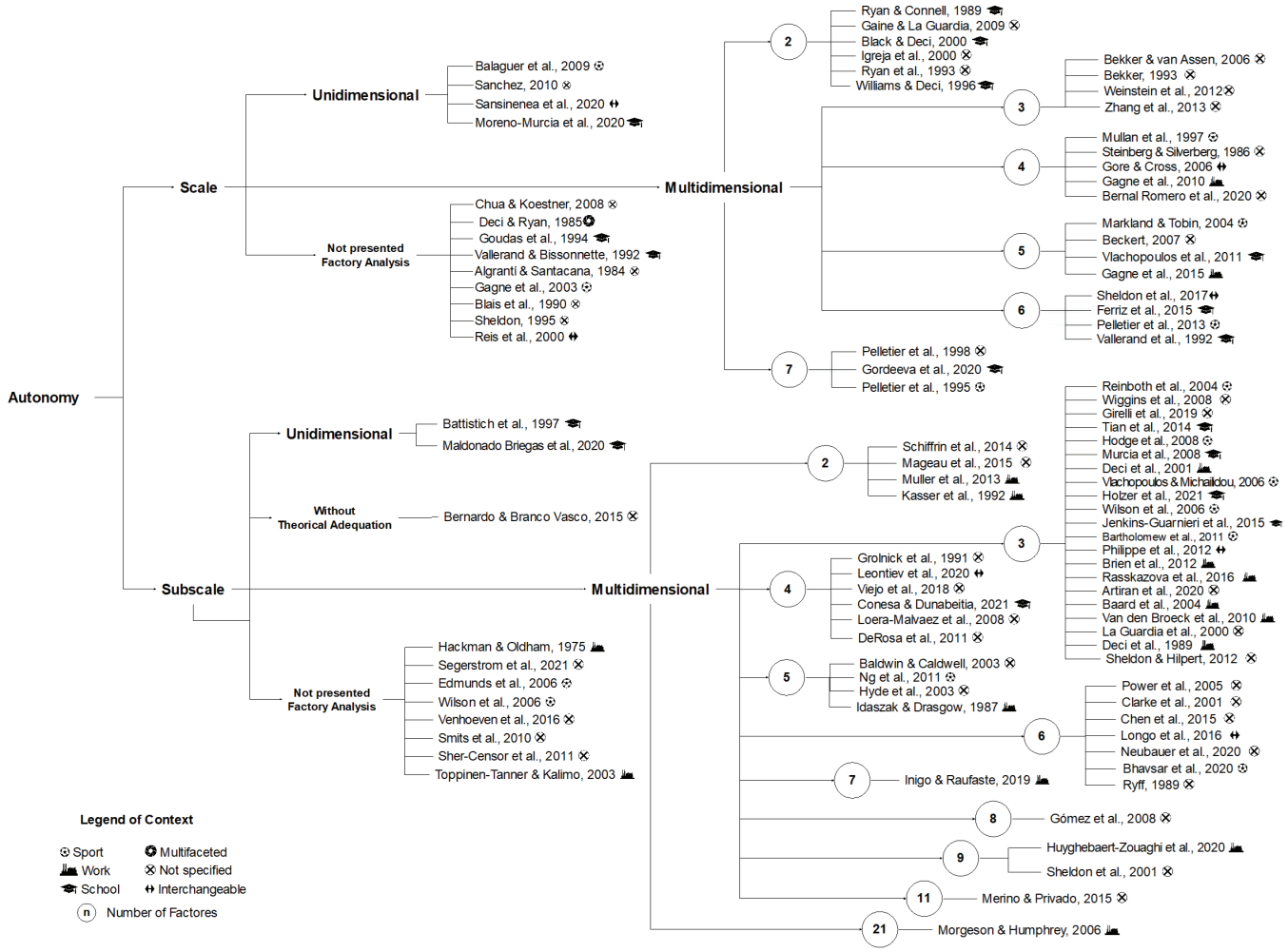

Figure 2. Distribution of autonomy instruments by type, factorial structure, and context of measurement

Structure Validation

The Structure Validation category examined the scales based on their factorial solutions, distinguishing between those measuring autonomy as a unidimensional construct (n = 4), as a multidimensional construct (n = 26), and those that measure autonomy as part of another construct (e.g., well-being), labeled here as subscales (n = 51). One subscale was identified as demonstrating a factor structure that was inconsistent with the theoretical framework underpinning the instrument (n = 1). It also identified scales (n = 9) and subscales (n = 7) that did not provide validation of their factorial structure. The distribution of autonomy instruments, categorized by whether they are scales or subscales and by the number of identified factors, is shown in Figure 2. Furthermore, the naming conventions for the factors of each scale can be consulted in supplementary material S1.

Measurement Contexts

In this category, the scales were classified based on the specific contexts they were designed to assess: specific contexts (n = 48), multifaceted (n = 1), interchangeable (n = 7), and unspecified (n = 42). Among the scales for specific contexts, the highest prevalence was for those created for the school context (n = 17, 18%). Detailed specifications for each scale's context are provided in Figure 2, and examples of how autonomy is conceptualized in each identified context are included in supplementary material S2..

Target audience

Autonomy scales that focused on a single age group (n = 42) were identified, as well as scales that covered multiple age groups (n = 38), as shown in Figure 3.

Additionally, studies (n = 18) were found that did not report the average or exact age of participants but used various terms to describe their samples. The list of these studies and the terminology used to describe the target audience can be found in supplementary material S3.

Language

A significant prevalence of English was observed in the production of the autonomy scales, with 51 (52.0%) of the scales produced in this language. Among the scales created in languages other than English (n = 24), various languages were represented, including German (n = 2), Chinese (n = 1), Spanish (n = 11), Finnish (n = 1), French (n = 3), Greek (n = 1), Dutch (n = 2), Portuguese (n = 1), and Russian (n = 2). Additionally, 23 scales were available in two or more languages, either because they were simultaneously produced in English and another language or because their publications included the full set of scale items in English alongside another language.

Notably, the work by Power et al. (2005) stands out in this category, as it involved contributions from researchers in 21 different countries. This study exemplifies the globalization of knowledge, as it adapted the WHOQOL scale for assessing quality of life in the elderly. The initial items were created in German, Spanish, Danish, French, Czech, Norwegian, Hebrew, Japanese, Chinese, Portuguese, Turkish, and Lithuanian, and were then translated into English, which was the language used in the publication of the scale.

Validation appraisal

The evaluation of the validation procedures of the scales performed by the two investigators showed a good agreement, having reached a Cohen Kappa of 0.70. All included autonomy tools reported at least one validation procedure. However, none of the scales performed the five evidence-based validation procedures indicated by the APA.

Test Content

In the content test criterion, 37 scales performed at last one evaluation procedure of the items that would compose the proposed scales, while nine scales had their items evaluated by both specialists and the target audience: CASP 19 (Hyde et al., 2003); Escala de las Necesidades Psicológicas Básicas en el Ejercicio adapted to physical education (Murcia et al., 2008); Cognitive Autonomy and Self-Evaluation (Beckert, 2007); Health Competence Beliefs Inventory (DeRosa et al., 2011); Need Satisfaction and Frustration Scale (Longo et al., 2016); Psychological Need Thwarting Scale (Bartholomew et al., 2011); Academic Motivatio Scale (Vallerand & Bissonnette, 1992); Support for Autonomy in Physical Education (Moreno-Murcia et al., 2020); Review of the Percibido Locus Scale of Causality (Ferriz et al., 2015).

Relations to Other Variables

The maximum mean was assigned in this criterion to 66 instruments, which related autonomy with two or more distinct variables. These scales can be identified in Table 1 as those with a score of two in the Relations to Other Variables column.

Internal Structure

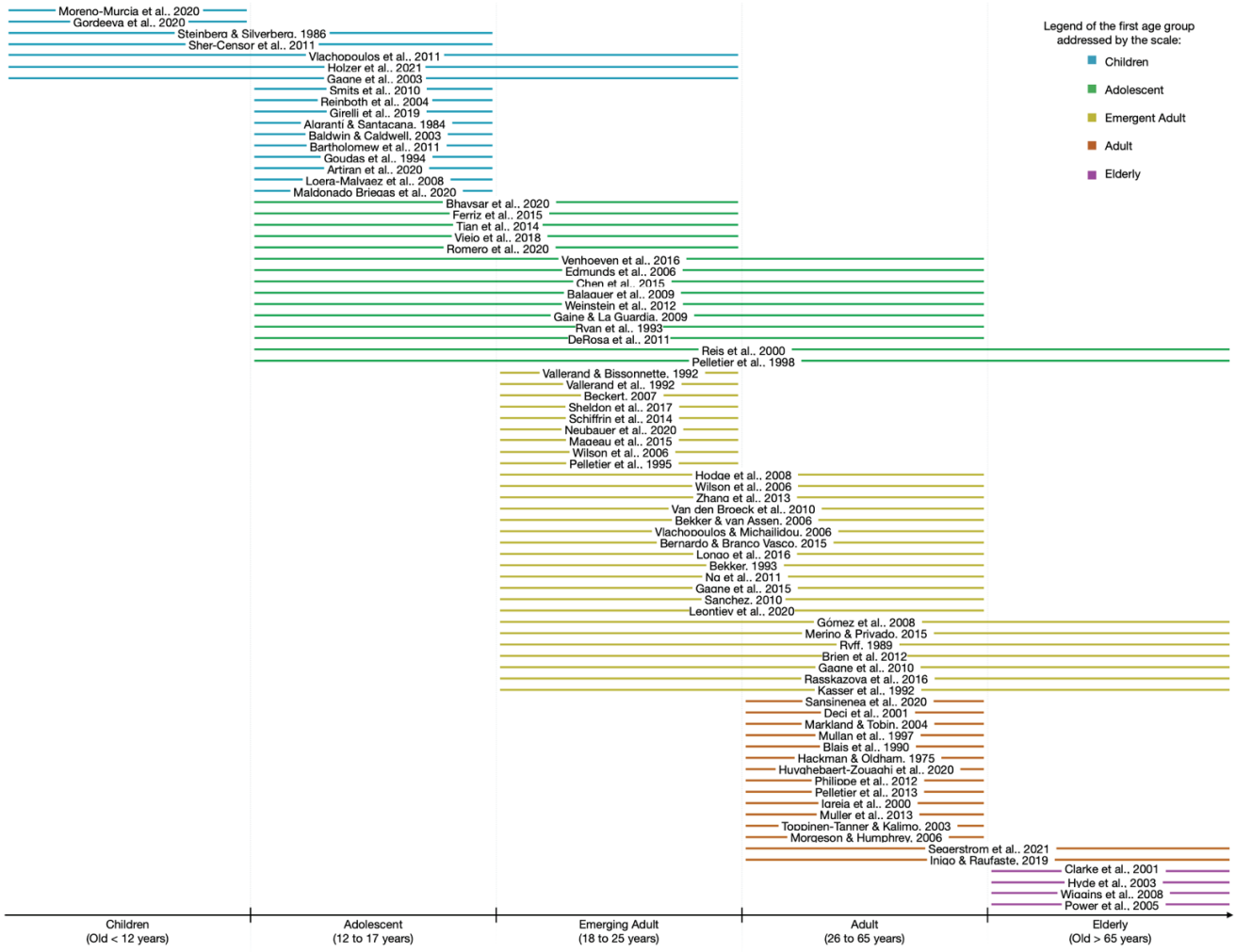

Figure 3. Distribution of Autonomy Scales by Target Audience Age Group

In this criterion, the maximum mean was also assigned to 66 scales, which reported at least two internal validation analysis procedures, such as reliability analyses, factor analyses, or multidimensional scales analysis. These scales can be identified in Table 1. They correspond to the instruments presenting two scores in the Internal Structure column.

Response Processes

Six scales presented at least one analysis procedure of the response process in the use of the autonomy instruments: CASP 19 (Hyde et al., 2003); Measures of the School as i3 Caring Community (Battistich et al., 1997); Cognitive Autonomy and Self-Evaluation (Beckert, 2007); Free Time Motivation Scale for Adolescents (Baldwin & Caldwell, 2003); Children's perceptions of their parents (Grolnick et al., 1991); Index of Autonomous Functioning Scale (Weinstein et al., 2012).

Consequences of Testing

None of the autonomy instruments studied reported procedures for analyzing the consequences.

Conclusions and Recommendations

The growing interest in the phenomenon of autonomy and the recent profusion in the production of scales has culminated in a current scenario that hinders the comparison of results obtained in positive psychology, as well as making it difficult for new researchers to select the most suitable instrument for

their studies. To address these challenges, this study identified, summarized, and qualitatively evaluated 98 autonomy scales. The scales were presented in five categories (language, target audience, measurement domain, structural validity, and theoretical foundation) and assessed according to the five validation criteria proposed by the AERA, APA, and NCME (1999). This synthesis of information positions this review as a valuable guide for selecting autonomy scales in positive psychology, helping researchers quickly identify the scale best suited to their objectives.

In addition to integrating the diverse literature of autonomy scales, that review also showed that the authors, when producing autonomy instruments, favored as a procedure for validating the scales the analysis of the relationship with other variables and the analysis of the internal structure, which is in agreement with studies that indicate a recent tendency of researchers to report estimates of internal consistency and evidence of convergence and divergence (Jarvis et al., 2003). Furthermore, only 46% of the analyzed studies reported content validation procedures, which reflects alignment with other studies identifying this gap in the production of psychological scales (Podsakoff et al., 2016).

However, the absence of content validation in more than half of the analyzed autonomy scales deserves attention. Content validation is an essential process for anchoring the scale in its theoretical purpose through a precise definition of the construct to be measured, as well as a review and analysis of the representativeness of items by experts (Clark & Watson, 1995; Haynes et al., 1995). This process ensures that the scale's statements and items appropriately operationalize the construct (Clark & Watson, 1995). The absence of content validation in the development of a scale indicates an inadequate or outdated methodology (Clark & Watson, 1995; Simms & Watson, 2007), which can lead to distorted interpretations and a deviation from the primary goal of the scales: to measure autonomy with fidelity and relevant generalization (Clark & Watson, 1995; Flake & Fried, 2020). Thus, content validation is fundamental to ensure that the instrument accurately represents the construct, enabling the measurement of autonomy in alignment with the proposed theoretical conception (Haynes et al., 1995; Sireci & Sukin, 2013).

In this way, by observing the prevalence of internal structure analyses and relationships with external variables alongside the gap in content analysis as part of the validation process, the results of this review suggest the risk of producing instruments with solid internal and structural consistency but limited capacity to distinguish autonomy from other related constructs. Since inadequate measurement of a construct compromises scales' discriminant and nomological validity, this reduces their practical value in scientific investigations (Podsakoff et al., 2016). In the final analysis, the lack of content validation can affect not only the validity of the conclusions drawn from these scales but also limits the advancement of understanding the phenomenon of autonomy within positive psychology. Thus, the results of this review support the need for greater methodological transparency and a more robust integration between theory and psychometric practice in the production of scales, as recently suggested by other authors (Aguinis et al., 2018).

Another emerging point of reflection from our results concerns that authors have rarely considered the implications of the test administration process for participants. This oversight possibly reflects the early stage of discussions on evidence-based consequences of testing validation, which still sparks debate on the best implementation methods (Sireci & Sukin, 2013).

The findings of this review further reinforce the view that construct validity should be understood as a dynamic process. Validity cannot be permanently fixed, as it is continuously informed and refined by emerging theory and empirical data (Simms & Watson, 2007). This suggests that developers of autonomy scales should not only create psychometrically robust instruments but also conduct rigorous and ongoing evaluations of the theoretical and practical validity of these instruments so that they can evolve in synchronization with advances in positive psychology (Simms & Watson, 2007).

Finally, these results should be interpreted with caution, considering some limitations of this review,

such as restricting searches to a single database, the absence of multiple judges in the stage of thematic analysis, and the lack of an evaluation of the psychometric quality of the scales analyzed. However, even in the face of these limitations, we believe that this work represents a significant contribution to the field of positive psychology, either because it integrates a diverse literature, giving a broad and cohesive view of this field, and because future researchers can use it as a valuable and practical tool in the process of choosing the autonomy scale.

Declarations

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Authors' contributions: Cristofthe Jonath Fernandes (50%) and Félix Neto (20%) conceived the study design. Cristofthe Jonath Fernandes was responsible for data collection, performed the data analysis, and wrote the first draft of the manuscript. Scarlett Borges Fernandes (5%) and Thalita Lays Fernandes de Alencar (5%) performed the data analysis of validation appraisal. Patrício Costa (20%) supervised data analysis. All authors supervised the work development and interpretation of results, contributed to manuscript revision, and read and approved the submitted version.

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Ethics approval and consent to participate: Not applicable.

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