

Assessment and diagnosis of social hardship situations through the SISO tool: Demonstration of stability in measurement

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ENG Summary: Assessment and diagnosis are part of the methodological process of social work intervention, and of the benefits of the public social services system. Thus, assessment instruments are required to evaluate situations of social exclusion. The article critically reviews the main measuring instruments and examines the stability of a tool for the assessment and diagnosis of social difficulty (SiSo, for its acronym in Spanish) in the inclusion-exclusion axis. Using data from the professional assessments of the first level of the public social services system in Castilla-La Mancha, the adequacy of the SiSo tool to six domains that comprise this measurement instrument and the ordinality of the proposed items are analysed. The statistical analyses are performed on a total of 44.196 assessments of cohabitation units in the 2018-2023 study period. Given the stable results over this period, the SiSo tool demonstrates a high degree of validity and reliability. These findings are relevant since professional decision-making in social inclusion policies requires valid and reliable diagnostic tools.

Keywords: Assessment; social services; social work.

ES Valoración y diagnóstico de las situaciones de dificultad social a través de la herramienta SISO: estabilidad en la medición

Resumen: La valoración y diagnóstico forman parte del proceso metodológico de la intervención en Trabajo Social, y de las prestaciones del Sistema Público de Servicios Sociales. En este contexto, se requieren de instrumentos de valoración de las situaciones de exclusión social. En este artículo, se realiza una revisión de los principales instrumentos de medición y se estudia la estabilidad de la herramienta SiSo de valoración y diagnóstico de la dificultad social en el eje inclusión-exclusión. A partir de los datos procedentes de las valoraciones profesionales del primer nivel del Sistema Público de Servicios Sociales de Castilla-La Mancha, se analiza la adecuación de los ámbitos que forman este instrumento de medición y la ordinalidad en los ítems propuestos. Los análisis estadísticos se realizaron sobre un total de 44.196 valoraciones de unidades de convivencia registradas en la herramienta en el período 2018-2023. Los resultados alcanzan un alto grado de validez y de fiabilidad, refrendados en la obtención de resultados similares en los distintos años. Los hallazgos son relevantes puesto que la toma de decisiones profesionales en las políticas de inclusión social requiere de herramientas de diagnóstico válidas y fiables.

Palabras Clave: Valoración; servicios sociales; trabajo social

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1. Introduction

Assessment and diagnosis have been included as part of the methodological process, which also involves other stages related to the planning and implementation of the intervention in social work practice (Cury, 2009; Cury and Arias, 2016; Díaz and Fernández, 2016, Ormaetxea et al., 2020; Raya and Real, et al. 2020). The assessment and diagnosis processes have been used in the literature to identify needs and conceptualize type of causes leading to difficult situations. Cury and Arias (2016) consider the practice of assessment and diagnosis as a holistic process that overcomes a fragmented and partial understanding of societal problems. The assessment and diagnosis process involves solving a problem for both the user and the participating institution through a collaborative process that strengthens mutual knowledge between professionals and users. The term “co-diagnosis” has been often used in place of “assessment” with the idea of emphasizing an alternative to the traditional approach that establishes a professional help relationship while highlighting participation in the assessment process (Raya and Caparrós, 2013; Aguilar, 2014; Cardona, et. al. 2017).

Assessment and diagnostic tools have implications on both professional activity and access to social benefits. On the one hand, the design of robust and validated tools supports decision-making based on quality information (Kum, et. al., 2015; Okpych and L-H-Yu, 2014; Raya and Lascorz, 2020). On the other hand, the records that come from the assessment and diagnosis tools enable the social protection systems to respond appropriately to difficult situations in targeted population (Giménez, et. al. 2019; Manzano, et. al., 2019; Rodríguez, et. al. 2019; Raya and Real 2020; Raya et. al. 2021).

The availability of appropriate assessment and diagnostic tools provides more consistency to the methodological process of intervention starting at the first level of social services. Duque (2014) refers to the lack of homogeneous tools and data necessary to develop an appropriate diagnosis, the inadequacy of the tools available to specific itineraries (for example, gender-based violence, abuse, or maltreatment in childhood), or the lack of coherence between the professional diagnosis and the content of the services from which the professional intervention plan is implemented.

A few recent studies have focused on reliability and validity tests prior to implementation, as well as predictive validity and the development of a synthetic indicator of difficulty level, which compares theoretical results with those derived from statistical analysis (Raya et. al., 2021; Carbonero, et. al. 2022). With respect to this latter point, the findings of the present article demonstrate the stability of the scale in the studied variables related to the construct of study. It is important to note that the stability of the findings shows a minimization in errors that usually arise from issues related to the lack of clarity of the instrument or other issues related to information gathered (Sánchez and Sarabia, 1999), ensuring the stability of the synthetic indicator under analysis.

In this work, our general aim is twofold: on the one hand, to examine how the SiSo tool for the assessment and diagnosis of social difficulty (SiSo, for its acronym in Spanish) converges with other methods for measuring social exclusion; and, on the other hand, to investigate the stability of this tool for each of the domains.

2. Instruments for the assessment and diagnosis of social exclusion

This section highlights key normative, technical, and content-related aspects on which the study of assessment and diagnosis instruments in social work practice has been grounded. On the one hand, the normative aspects acknowledge that assessment and diagnosis have to be included in the catalogue of technical services within the framework of the public social services system. On the other hand, assessment and diagnosis instruments respond to professional aspects that justify their use.

The Spanish national and regional legal frameworks acknowledge social diagnosis as a service that should be recognized in the Reference Catalogue of Social Services, which provides benefits to people across the state's territory and established common principles of quality and good use (Ministry of Health, Social Services and Equality, 2013; Giménez, 2021a; 2021b; Hartmann, & Pastor, 2021). The Draft Bill of the Law on Basic Conditions for Equality in the Access and Enjoyment of Social Services specifies the functions of assessment, diagnosis and accompaniment, defining the roles that social workers and other professionals play in the intervention process as well as in gaining access to the integrated network (Ministry of Health, Social Services and Equality, 2013).

Assessment is recognized as a necessary element that guarantees comprehensive care, and as a part of professional rights and obligations in the Spanish regional laws of second-generation social services (Aguilar, 2014; Hartmann and Pastor, 2021; Casado and Fantova, 2007; Casado, 2010). Law 14/2010, of 16 December, on social services of Castilla-La Mancha, integrates social assessment and diagnosis as a technical service of the system that enables social services to provide appropriate care. The roles of assessment and diagnosis are specific to the primary and specialized social services. These roles, which are part of the Social Care Plan, include ensuring appropriate care and promoting specific actions aimed at personal, social, educational and employment inclusion. This diagnosis must be made based on accurate information about the situation of the person. The law highlights the duty of social service professionals to inform users about their intervention process and a plan on their objectives and actions.

As for the technical aspects, different authors have pointed out the significance of having tools that categorize and identify the various target population profiles, as well as the allocation of resources and programs according to the seriousness of problems facing people, the re-orientation of social services towards profiles of population or the joint intervention between social services and other social protection systems (Pérez, et. al. 2019; Laparra and Martínez, 2021; Martínez, 2022; Minas, 2016; Martínez, et. al. 2022). In a similar vein, the Working Group on Diagnostic Tools for Situations of Vulnerability and Social Exclusion of the

Social Inclusion Network proposes three key elements: 1) establishing an information system to study poverty and social exclusion; 2) providing a shared information system between social services and employment; and, 3) obtaining evidence that addresses planning from social services (Government of Spain. Ministry of Social Rights and Agenda 2030, 2019.).

The literature points out the benefits and challenges of having assessment and diagnostic tools available. The main advantages include the standardization of professional criteria that are used to generate social diagnosis from social services, as well as providing greater scientific credibility and professional recognition to the intervention or offering information exchange with other domains of social intervention (Ormaetxea, et. al. 2017; Van Duijn, et. al. 2018; Laparra and Martínez, 2021; Taylor, 2012). Using assessment and diagnostic tools also presents challenges, such as the time required for their use or the complexity of using these tools in the intervention processes, which can lead to work overload in the basic social services (Ormaetxea et. al., 2017; Kum, et. al. 2015). Nonetheless, the professional community acknowledges the experience of using the SiSo tool for the diagnosis and assessment of social difficulties during the implementation phase (Raya et. al., 2020; 2021).

Economic poverty, material deprivation and social exclusion are examined using the Living Conditions Survey (LCS), which is carried out by the National Statistics Institute (INE, for its acronym in Spanish), and the Needs and Integration Survey (EINSFOESSA, for its acronym in Spanish), which is sponsored by Foessa Foundation. The LCS provides representative data on the Spanish population, which is used, among other things, to develop the Arope indicator (At Risk of Poverty and/or Exclusion) for Spain. This indicator, which is part of the SiSo tool, is composed of three sub-indicators: poverty rate, severe material deprivation rate, and number of people living in households with very low work intensity.

EINSFOESSA aims to produce a compound or synthetic indicator consisting of 35 indicators grouped into 7 domains that distribute the population in 4 intervals: full inclusion, precarious inclusion, moderate inclusion, and severe inclusion. Moreover, EINSFOESSA and the SiSo tool share 6 domains, 3 variables for the economic area (volume of income, source of income, and material deprivation), 1 variable for the labour area (intensity of employment), and 2 variables partially related to the residential area (housing conditions and accessibility) (Raya et. al., 2023).

The following objectives are addressed in this paper since the SiSo tool is widely used in primary care social services in Castilla Mancha region of Spain: 1) to examine how the construct of the tool under study in this work converges with other instruments applied to study of social exclusion; 2) to investigate the ordinality of the variables that comprise the assessment scale of the SiSo tool between 2018 and 2023; and, 3) to validate the stability for each of six life domains that comprise the assessment scale between 2018 and 2023.

3. Methodology

3.1. Data

In this study, we used registration information on the diagnosis of social difficult situation facing the households. This diagnosis was carried out with the SiSo tool. The cumulative data in the period 2018–2023 is 44.196 records, which include the assessments made at the first level of the public social services system in Castilla-La Mancha. Annual data was identified for 8.978 family units in 2018; 6.644 in 2019; 4.015 in 2020; 7.939 in 2021; 8.729 in 2022, and 8.437 in 2023. Data was collected on 98 Social Service Areas and 226 Social Service Zones (SSZ)¹.

Table 1 displays the demographic characteristics of breadwinners and household members to whom the SiSo scale for assessing situations of social hardship has been applied. The register data includes information about age, sex, birth country.

¹ Decree 287/2004 of 28-12-2004, which regulates the territorial structure of the Social Services Zones and Areas and the functional structure of the Public Social Services System in Castile-La Mancha, identifies the ZSS as the basic territorial unit for the provision of social services, while the area is established as a territorial unit for coordination between basic and specialized social services. The decree sets out the recommended number of inhabitants for its organization.

Table 1. Sociodemographic characteristics

			%	N
Demographic characteristics of primary earners	Sex	Male	33,4%	14.769
		Female	64,7%	28.576
		Unknown	1,9%	851
	Age	18-30	8,6%	3.801
		31-40	19,4%	8.574
		41-50	26,6%	11.756
		51-60	25,3%	11.182
		≥61	20,1%	8.883
		Unknown	0%	0
	Birth country	Spain	64,2%	28.417
		Other countries	33,9%	14.979
		Unknown	1,9%	800
	Province	Albacete	28,1%	12.431
		Ciudad Real	26,2%	11.561
		Cuenca	9%	3.962
		Guadalajara	11,1%	4.915
		Toledo	24,2%	10.796
		Unknown	1,2%	531
Household characteristics	Single Parent Household		34,3%	15.158
	Household size	1 member	24,5%	10.849
		2 members	22,7%	10.024
		3 members	20,8%	9.189
		4 members	15,9%	7.018
		5 members	9,1%	4.044
		≥ 6 members	5,7%	1.661
		Unknown	1,6%	533
	Number of children in household	0	46,7%	20.640
		1	23,1%	10.210
		2	18,1%	8.000
		≥ 3	12,2%	5.392

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain

3.2. Instrument

The register contains 25 variables, which are grouped into 6 life domains. The variables are composed of 4 items to capture situations according to the highest or lowest level of seriousness in the situation of household members. Additionally, the SiSo tool includes the socio-demographic characteristics of the main breadwinners and variables related to social intervention (Raya and Real, 2020). These variables have been operationally defined in a scale in the form of a rubric as described in the tool's procedural manual, for which other experiences related with the measure in the study of social exclusion have been taken into account (Federación Sartu, 2002; Hernández, 2014).

3.3. Analysis techniques

The analysis techniques are used to ensure the scale reliability and obtain similar measures at different points in time (low internal variability), allowing comparison of the results. Moreover, validity indicates the scale's ability to make measurements related to the concept of social exclusion (Bohrnsted, 1969; Ambelu, et. al. 2017).

We use the statistical analysis technique known as “Categorical Principal Component Analysis” (CATPCA) to examine the adequacy of a synthetic indicator previously formulated (Raya and Real, 2018). CATPCA consists of calculating a synthetic indicator from a certain number of variables, retaining as much information as possible from the original variables, as in classical Principal Component Analysis (PCA). Unlike PCA, which requires that the initial variables be numerical and have a linear connection between them, CATPCA allows for the use of any kind of initial variables, including nominal, ordinal, and numerical ones. Without assuming linearity, our analysis uses ordinal variables and an ordinal relationship between them.

This statistical technique has been used in other related research on poverty and social exclusion to reduce the number of variables in the data, which is valuable for simplifying the analysis and identifying the main factors contributing to these social phenomena (Pardo and Ruiz, 2002, Subirats, et. al. 2004; Pérez, et. al. 2002; Laparra, et. al. 2021).

The first phase of our study involves calculating an indicator for each area and year applying CAPTCA and Bootstrap techniques on 1,000 samples. Using SPSS.28 and SPSS. 29 (Statistical Package for the Social Sciences) we estimate the following statistics: the Cronbach's alpha value, which is measured in CAPCA and applied to the rescaled indicators and the component weights, along with the corresponding confidence intervals (Ginner & Smedler, 2011). Additional indicators included in the analysis are the percentage of variance explained in each life domain, and the transformation coefficients of each variable.

In the second phase, the results are compared using a Pearson correlation analysis in each life domain, investigating the degree of association in each study year. When results are close to 1, it can be concluded that the scores obtained in each indicator are similar and interchangeable according to the year. Finally, we treat those cases that do not intervene in the calculation of the indicator using supplemental data like option in SPSS program. In this way, these cases do not affect that calculation, but they do receive the corresponding score.

4. Results

Prior to the analysis of the results between 2018 and 2023, the construct of the studied SiSo tool is revised, and it is compared with other national and regional tools for studying social exclusion, such as the LCS and EINSFOESSA, or the social diagnosis model and instrument of social exclusion assessment, developed by the Basque Government.

The results presented below indicate that the conceptual design of the SiSo tool shows a high level of consensus with other tools regarding the structure of the topics covered in the study (Raya et. al, 2023). However, there is disagreement over how the constructs are used and how to define the indicators that address social exclusion in the field of social services.

In the economic domain, there are variables related to volume, forecast and income source (INE, 2023). Income is included in information sources such as the LCS or EINSFOESSA that are used to measure poverty. Other tools address economic issues, such as individual and household-level expenditures (Basque Government, 2009, 2014). The SiSo assessment and diagnosis tool addresses severe material deprivation resulting from a lack of financial resources, while other assessment and diagnosis tools consider these problems in the residential domain based on housing expenses or indebtedness (Basque Government, 2009; 2014).

Concerning the employment domain, the SiSo assessment and diagnosis tool comprises information about the type of work activity achieved that is included in the Labour Force Survey, which differentiates between employed and unemployed population. Additionally, as part of the AROPE classification, other characteristics are included, such as job insecurity that comprises duration of employment, and work intensity of household members (INE, 2023). Aside from the distinction between employment and unemployment, and job insecurity, other assessment and diagnostic tools contain variables such as contractual ties, type of contract, working environment or adequacy of income from work for live performance (Basque Government, 2009; 2014).

The education domain included in the SiSo assessment and diagnosis tool refers to the level of studies attained in accordance with the National Classification of Education (CNED, for its acronym in Spanish), as well as the adequacy of the educational level, work experience and other competences for the demands of the labour market. Additional tools for assessing and diagnosing social exclusion include knowledge of social and cultural situations, knowledge of the social protection system or different types of personal skills and abilities (cognitive, instrumental or skills-based) (Basque Government, 2009; 2014).

As for the residential domain, the SiSo assessment and diagnosis tool comprises information about the residence location and the tenancy status of dwellings, using the European Typology of Housing Exclusion (ETHOS) classification (SIIS, 2019). The SiSo tool provides further information on housing habitability, residential segregation, and housing suitability concerns. While this information is collected through other assessment and diagnosis tools (Basque Government, 2009; 2014), our SiSo tool provides further information about characteristics related to housing types, residential stability, and segregation concerns.

The socio-health domain contains data on seriousness of health issues, consequences of health problems on family structure, and access to health care. Other tools for assessment and diagnosis gather this data, delving deeper into specific aspects of health, such as physical or mental health, or data on drug dependence and addiction (Gobierno Vasco, 2009; 2014).

Lastly, the relational domain provides relevant information related to the assessment of socio-family relationships, coexistence in the community, social participation, degree of support, and asocial behaviour. Other assessment and diagnostic tools incorporate additional information for the assessment of cohabitation, organization of daily life, family and non-family responsibilities, and degree of institutional support (Basque Government, 2009; 2014).

Overall, we find that, on the one hand, the different tools under analysis show convergence in the domains of exclusion, and, on the other hand, there is a lack of consensus about how these domains have been measured.

4.1. Income domain

The variables included in the analysis are summarised in a single income domain, exceeding the Cronbach's Alpha of $> 0,7$ for all study years, and their percentage of explained variance is very similar, ranging from 54,07% of the variance for all cases collected in 2018 to 57,4% of the variance for study cases in 2023.

The factor loadings remain stable in the years in which the information is collected, maintaining always the same order from lowest to highest appropriateness to the scope of the study. The following variables are found for the different years: 'income source', 'income forecast', 'income level, and to a lesser extent, the variable 'severe material deprivation'.

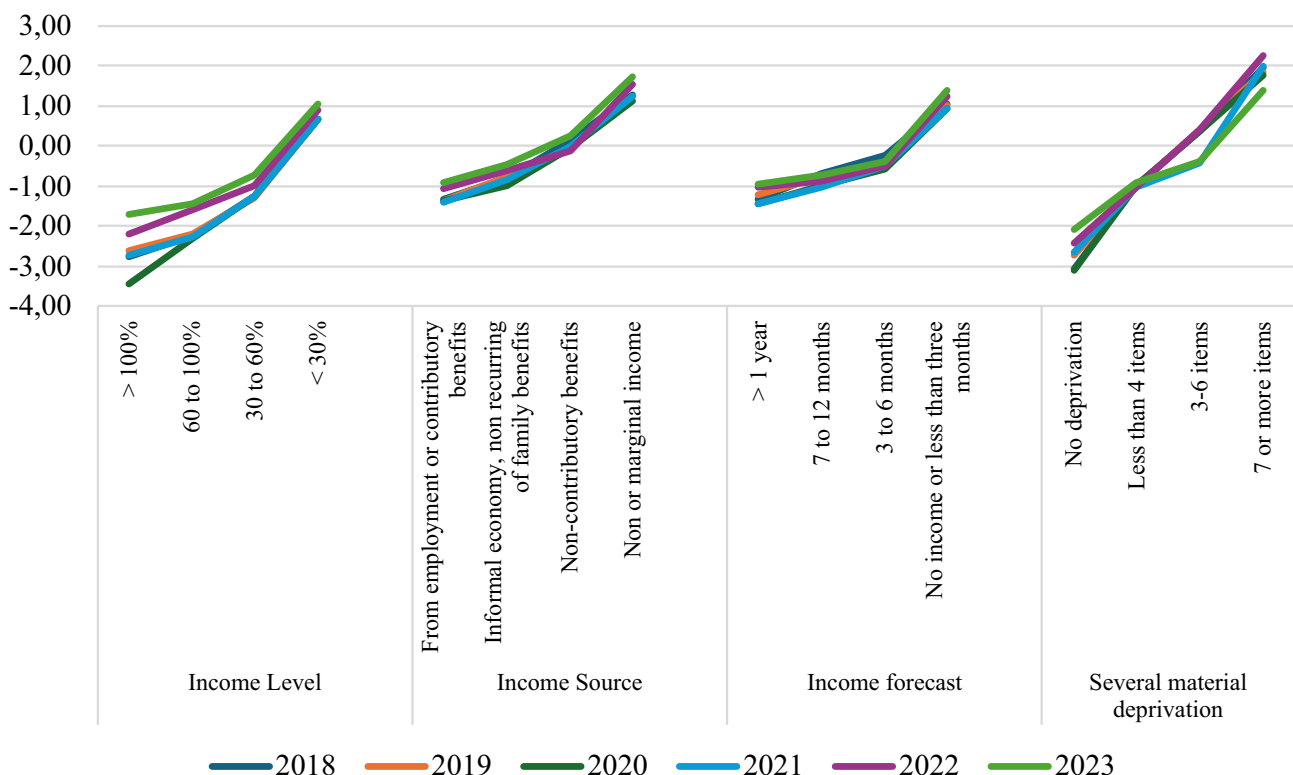
Table 2. Exploratory analysis of reliability and unidimensionality at the economical level in 2018-2023

	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Income level	,744	,732-,755	,755	,742-,767	,756	,713-,771	,758	,745-,770	,776	,767-,785	,800	,792-,809
Income source	,822	,815-,829	,828	,829-,836	,832	,821-,842	,832	,824-,839	,842	,835-,848	,851	,844-,857
Income forecast	,787	,778-,796	,802	,792-,812	,787	,773-,801	,884	,772-,795	,796	,787-,805	,801	,792-,811
Several material deprivations	,591	,572-,611	,594	,571-,616	,617	,592-,643	,589	,567-,612	,595	,577-,614	,629	,611-,646
% variance explained	54,07%		55,00%		55,38%		54,58%		54,98%		57,40%	
Cronbach's Alpha	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.
	,727	,718-,735	,741	,731-,750	,744	,732-,756	,735	,724-,745	,754	,746-,761	,778	,771-,786

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

In all cases, the variables used maintain their ordinal properties, as demonstrated by the values of the transformed variables (Graph 1).

Figure 1. Transformation coefficients of each variable



Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain

When we apply these analyses to the successive datasets for each year, we obtain six indicators that correspond to each study year. The constructed indicators are equivalent, since the computed correlations of income scores are close to 1 (correlation = 0,993) (Table 3).

Table 3. Pearson correlations from the income scores obtained in 2018-2023

	2018	2019	2020	2021	2022	2023
2018	1	,998**	,999**	,999**	,993**	,993**
2019	,998**	1	,999**	,999**	,997**	,997**
2020	,999**	,999**	1	,999**	,995**	,994**
2021	,999**	,999**	,999**	1	,996**	,996**
2022	,993**	,997**	,995**	,996**	1	1,000**
2023	,993**	,997**	,994**	,996**	1,000**	1

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain, ** The correlation is significant at the 0,01 level

4.2. Labour domain

In the labour domain, the results range from a minimum of 63,34% of the variance in 2021 to a maximum of 67,10% in 2023. The findings are summarised in a single factor for each study year, with Cronbach's Alpha value exceeding 0,7 for each study year (Table 4).

The factor loadings remain constant over time, yielding similar employment scores for the variables 'employment situation' and 'employment intensity', and placing the variable 'employment prospect' with the lowest score in the last position.

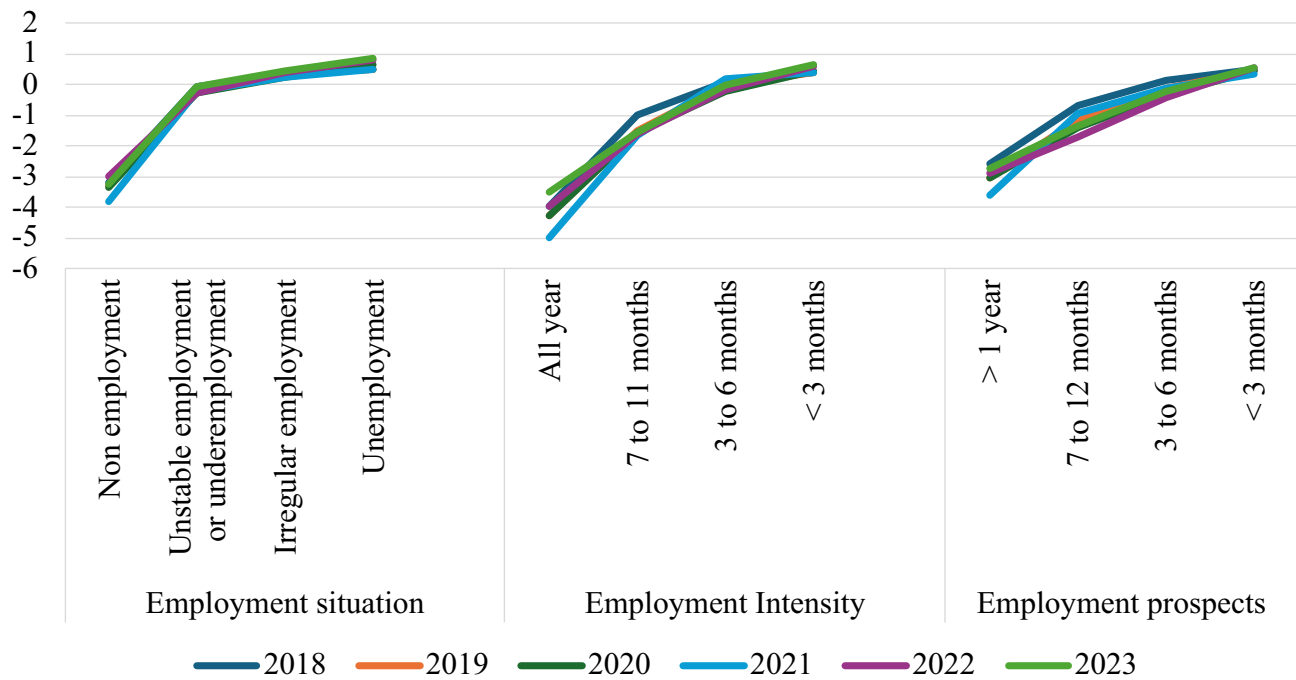
Table 4. Exploratory analysis of reliability and unidimensionality at the employment level in 2018-2023

	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Employment situation	,838	,825-,850	,839	,823-,852	,837	,820-,854	,835	,818-,851	,839	,829-,850	,837	,826-,847
Employment intensity	,846	,836-,856	,837	,822-,851	,831	,815-,849	,825	,809-,841	,832	,821-,843	,84	,830-,850
Employment prospect	,764	,750-,777	,801	,785-,820	,782	,759-,806	,801	,783-,819	,810	,796-,824	,829	,817-,842
% variance explained	63,77%		64,15%		63,44%		63,34%		65,88%		67,10%	
Cronbach's Alpha	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.
	,771	-,733-,765	,767	-,747-,787	,752	-,726-,777	,758	736 -,779	0,769	,753-,784	,784	,770-,789

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain

The items of the transformed variables maintain its ordinality in each year of the study period (Graph 2).

Figure 2. Transformation coefficients of each variable



Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain

The indicators constructed in the employment domain are equivalent, reaching the lowest value in the correlation analysis of 0,983 (Table 5).

Table 5. Pearson correlations from the employment scores in 2018-2023

	2018	2019	2020	2021	2022	2023
2018	1	,998**	,988**	,997**	,979**	,983**
2019	,998**	1	,995**	1,000**	,988**	,992**
2020	,988**	,995**	1	,996**	,998**	,998**
2021	,997**	1,000**	,996**	1	,991**	,993**
2022	,979**	,988**	,998**	,991**	1	,999**
2023	,983**	,992**	,998**	,993**	,999**	1

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain **
The correlation is significant at the 0,01 level

4.3. Education domain

The different CAPTCA analyses carried out for the education domain summarises the information in a single factor, with the variance explained ranging between 59,24% and 61,82% in the different years. The factor loadings obtain a similar value over time, with the variables 'employment qualification' and 'Job search skill' achieving the highest values, followed by 'level of education, and 'other skills'. The Cronbach's alpha value for each study year is close to 0,8 (Table 6).

Table 6. Exploratory analysis of reliability and unidimensionality at the education level, 2018-2023

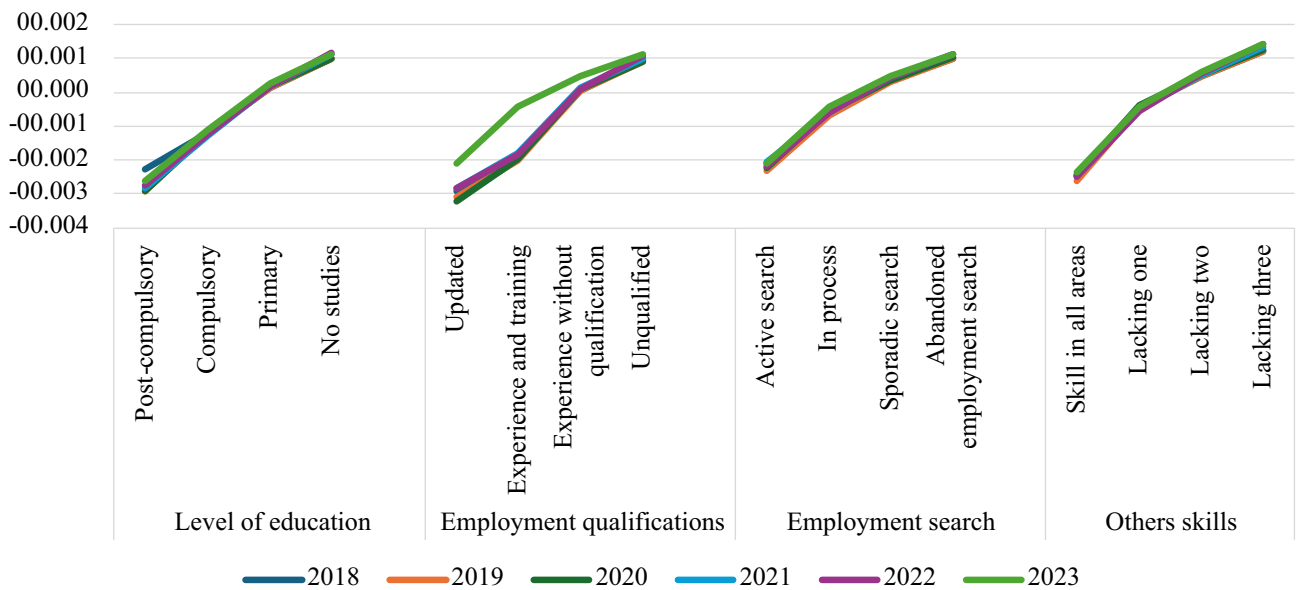
	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Education level	,785	,773-,796	,775	,761-,789	,790	,794-,808	,762	,749-,776	,755	,744-,768	,760	,748-,773
Employment qualifications	,815	,806-,825	,804	,792-,815	,825	,812-,840	,801	,791-,811	,798	,787-,811	,793	,784-,803
Job search skills	,804	,794-,813	,801	,798-,813	,789	,772-,803	,805	,794-,815	,799	,789-,809	,794	,784-,803

	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Others skills	,771	,759,,782	,777	,764-,790	,763	,745-,792	,770	,757,,782	,763	,751-,773	,769	,757-,780
% variance explained	61,82%		60,94%		61,38%		60,48%		59,81%		59,24%	
Cronbach's Alpha	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.
	,805	,796-813	,798	,788-809	,802	,789-,815	,792	,801-821	,802	,791-,813	,784	,776-,793

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain

Transformations in the variables are displayed in ordinal values for each item (Figure 3).

Figure 3. Transformation coefficients of each variable



Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The correlations between the indicators of the education factor approach scores of 1, indicating the lowest association of 0,997 (Table 7).

Table 7. Pearson correlations from the education scores in t 2018-2023

	2018	2019	2020	2021	2022	2023
2018	1	1,000**	,999**	1,000**	,999**	,998**
2019	1,000**	1	1,000**	,999**	,999**	,998**
2020	,999**	1,000**	1	,999**	,998**	,997**
2021	1,000**	,999**	,999**	1	1,000**	,999**
2022	,999**	,999**	,998**	1,000**	1	,999**
2023	,998**	,998**	,997**	,999**	,999**	1

Source: The authors based on the results, ** La correlación es significativa en el nivel 0,01, The correlation is significant at the 0,01 level

4.4. Residential domain

In each year between 2018 and 2023, the residential domain is summarised in a single factor, which the explained variance ranging between 41,615% and 45,032%, while the Cronbach's alpha for each study year is very close to 0,7 in the 2018-2023 years under analysis (Table 8). The factor loadings remain constant during the study years, with 'housing conditions' and 'tenancy status' in order of highest level of adequacy, and 'location of the Housing Environment' and 'accessibility' in order of lowest level of adequacy.

Tabla 8. Exploratory analysis of reliability and unidimensionality at housing level, 2018-2023

	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Tenancy status	,764	,743-,784	,747	,725-,768	,757	,732-,769	,758	,739-,776	,742	,719-,762	,713	,691-,734
Housing Conditions	,807	,790-,823	,816	,799-,833	,825	,806-,843	,832	,817-,846	,807	,792-,821	,818	,803-,833
Accessibility	,544	,479-,599	,589	,529-,644	,640	,573-,706	,561	,507-,611	,522	,449-,588	,639	,587-,685
Location of Housing Environment	,689	,649-,728	,733	,697-,723	,772	,739-,806	,702	,670-,734	,708	,677-,739	,751	,720-,778
% variance explained	41,62%		42,87%		45,03%		42,76%		41,69%		41,69%	
Cronbach's Alpha	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.
	,668	,642-,693	,701	,674-,727	,743	,713-,770	,691	,667-,714	,659	,633-,684	,713	,686-,736

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The values obtained in the transformed variables indicate the ordinality of the different items.

Figure 4. Transformation coefficients of each variable



Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The correlations found in the residential domain each year reach high values and are practically interchangeable between them, with the lowest association at 0,99 (Table 9).

Table 9. Pearson correlations from the residential scores obtained in 2018-2023

	2018	2019	2020	2021	2022	2023
2018	1	,999**	,998**	,998**	,997**	,996**
2019	,999**	1	,998**	,998**	,998**	,997**
2020	,998**	,998**	1	,999**	,998**	,996**
2021	,998**	,998**	,999**	1	,999**	,995**
2022	,997**	,998**	,998**	,999**	1	,998**
2023	,996**	,997**	,996**	,995**	,998**	1

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain, **
The correlation is significant at the 0,01 level

4.5. Health domain

The results obtained in the health domain are summarised in a single factor and are close to 70% of the variance explained. Cronbach's alpha is above 0,8 in each of the examined years (Table 10). The factor loadings that best fit the health factor for each year under study are 'health status', 'burden of care', 'Continuity of treatment' and 'health habits'.

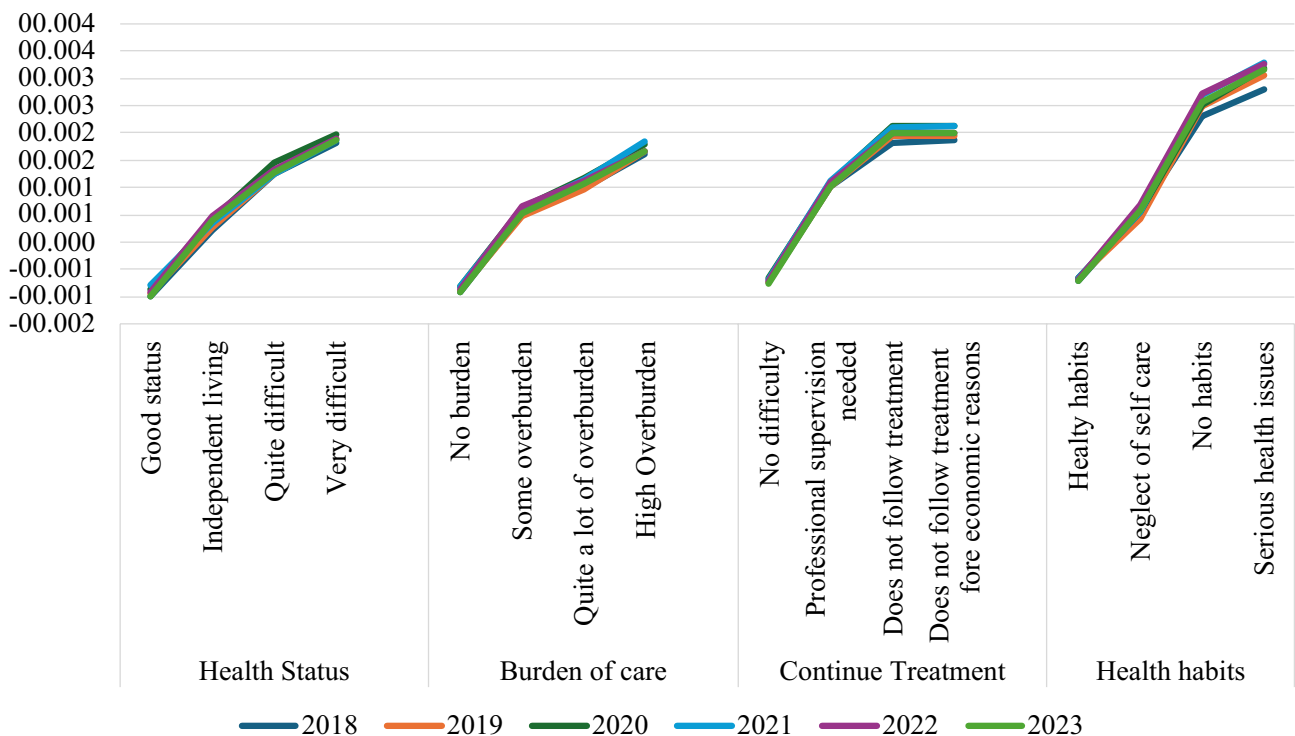
Table 10. Exploratory analysis of reliability and unidimensionality at the health level, 2018-2023

	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Health Status	,898	,894 -,902	,901	,896 ,907	,895	,892-,906	,900	,895 -,905	,900	,900-,908	,900	,896-,904
Burden of care	,884	,878-,889	,896	,890-,901	,889	,882-,897	,892	,886-,897	,900	,896-,905	,867	,893-,902
Continuity of treatment	,854	,849-,862	,86	,852-,867	,852	,842-,862	,863	,851-,876	,855	,847-,862	,856	,850-,863
Health habits	,708	,692-,721	,688	,669-,705	,700	,677-,727	,702	,686-,719	,669	,653-,685	,678	,660-,692
% variance explained	68,843%		68,976%		68,769%		69,522%		68,295%		68,588%	
Cronbach's Alpha	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.	Value	C.I.
	,862	,855-,866	,862	,855-,866	,860	,853-,868	,864	,859-,870	,858	,855-,866	,858	,853-,863

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The results obtained in the transformation of each variable are presented in ordinal values (Figure 5).

Figure 5. Transformation coefficients of each variable



Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The correlation analysis shows the high association between the indicators obtained in each year, with the lowest value at 0,99 (Table 11).

Table 11. Pearson correlations from the health scores obtained in 2018-2023

	2018	2019	2020	2021	2022	2023
2018	1	1,000**	1,000**	1,000**	1,000**	1,000**
2019	1,000**	1	,999**	1,000**	,999**	,999**
2020	1,000**	,999**	1	,999**	1,000**	1,000**
2021	1,000**	1,000**	,999**	1	,999**	1,000**
2022	1,000**	,999**	1,000**	,999**	1	1,000**
2023	1,000**	,999**	1,000**	1,000**	1,000**	1

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain, **
The correlation is significant at the 0,01 level

4.6. Relational domain

The variance explained in the analyses conducted is around 45% for each studied year. Furthermore, the factor loadings show the variables that best fit the residential factor, which include 'social coexistence', 'family relationships', 'support network', 'asocial behaviour' and 'social engagement'. The Cronbach's alpha and eigenvalue are adequate for each of the study years (Table 12).

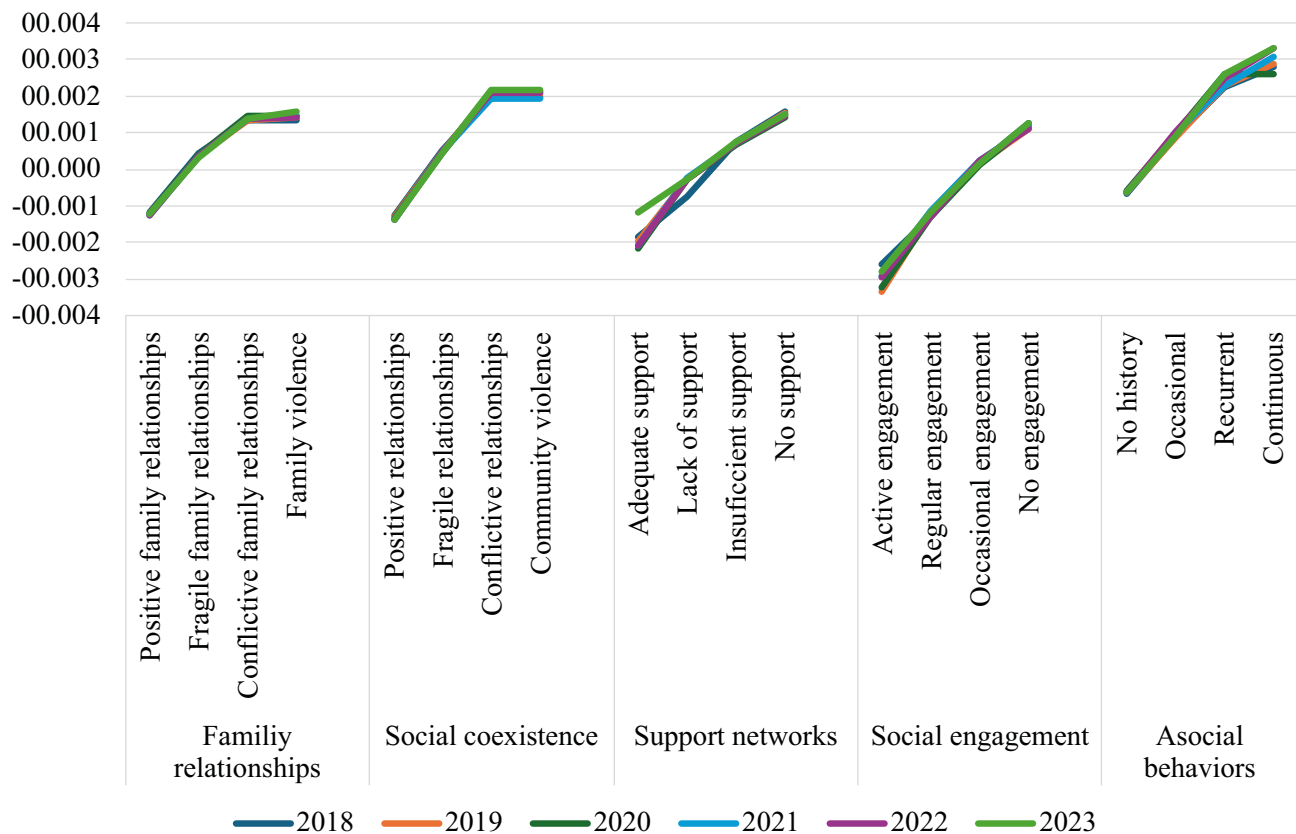
Table 12. Exploratory analysis of reliability and unidimensionality at the social relations level, 2018-2023

	2018		2019		2020		2021		2022		2023	
	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
Family relationships	,763	,753-,773	,770	,756-,782	,765	,749-,780	,769	,757-,781	,759	,758-,770	,762	,751-,772
Social coexistence	,784	,775-,793	,785	,774-,796	,792	,778-,806	,786	,777-,796	,782	,773-,791	,782	,772-,791
Support networks	,703	,691-,716	,702	,687-,718	,710	,690-,771	,722	,708-,736	,711	,695-,725	,713	700-,727
Social engagement	,562	,543-,580	,503	,477-,534	,517	,482-,553	,568	,545-,591	,546	,523-,568	,56	,539-,581
Asocial behavior	,591	,568-,610	,603	,575-,628	,584	,550-,612	,572	,547-,595	,522	,499-,549	,562	,537-,584
% variance explained	45,593%		45,560%		45,290%		46,736%		44,174%		45,723%	
Cronbach's Alpha	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.	Load	C.I.
	,720	,711-,729	,711	,701-,722	,712	,700-,726	,725	,715-,735	,698	,689-,709	,714	,705-,723

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The component saturation results for each of the items exhibiting ordinal structure in all of the studied years (Figure 6).

Figure 6. Transformation coefficients of each variable



Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain,

The analysis of correlations reveals that the scores are similar in each year, reaching the lowest association value at 0,99.

Table 13. Pearson correlations from the social relations scores in 2018-2023

	2018	2019	2020	2021	2022	2023
2018	1	,999**	,999**	,999**	,999**	,999**
2019	,999**	1	,999**	1,000**	,999**	,999**
2020	,999**	,999**	1	,999**	,999**	,999**
2021	,999**	1,000**	,999**	1	1,000**	,999**
2022	,999**	,999**	,999**	1,000**	1	,999**
2023	,999**	,999**	,999**	,999**	,999**	1

Source: Own elaboration based on data from the first level of public social services system in Castilla-La Mancha region, Spain, **
The correlation is significant at the 0,01 level

5. Conclusions

This article investigates different domains (income, employment, education, residential, health and relational) that comprise the SiSo scale in the 2018-2023 period. Our objectives were the study of the indicators, demonstrating its ordinality and stability of the results. Thus, we conclude that the indicators used are stable and appropriate to the different life domains formulated in the SiSo scale, constructed with the same results regardless of the examined year. This makes it feasible to rely on the stability of the instrument for use in the assessment and diagnosis of social exclusion situations, hence expanding its use in regions beyond Castilla-La Mancha region of Spain, which are the focus of our study.

Our first objective was to analyse the convergence of the SiSo tool with other tools that also study of social exclusion. The results obtained about reliability highly, on the one hand, the methodological process of intervention from social work and, on the other hand, the optimal results found in the assessment and diagnostic instruments supports the catalogue of technical services included in the framework of the public social

services system. Based on our review of international studies that present systematic validations in population groups over time are scarce (Billsten, et. al. 2018). The generation of robust results in the assessment and diagnostic tool has implications for social services policies, either by contributing to characterize the problems in social service users, or by producing reliable results that can be used to segment and organize social protection services (Manzano, et al., 2019; Minas, 2016; Van Duijn, et al. 2018).

Our second and third objective were, respectively, to investigate the ordinality of the variables and the stability of diverse life domains. On the one hand, the results for the calculation of the reliability and unidimensionality of the six domains that comprise the SiSo tool were confirmed. The results obtained in each of the six proposed domains reached a variance close to 50% or more for each of the years in the CATPCA, eigenvalues greater than 1, and factor loadings higher than 5 for each of the variables. On the other hand, the adequacy of the items and the ordinality of the measurement were demonstrated, taking each study year as a reference value. In this respect, stability in the measurement of ordinality during the 2018–2023 period was found by comparing the results for the different years, regardless of the year in which the professional assessments were conducted. Furthermore, an analysis of correlations between the indicators obtained in each area confirmed the equivalence in each of them for the 2018–2023 period.

As further developments and research related to this topic to evolve, we recommend first organizing the problems in the social services centres and establishing differences between them. Such types of comparisons could start with the detection of indicators that are stable over time. Second, research on the professional assessments and diagnoses of social service centres might be continued, considering the characteristics of the context in which the assessments of the social service centres are obtained. Finally, we recommend the use of a longitudinal or retrospective perspective to examine the cohabitation units related to the professional assessments made at different times, and the transition between kinds of difficulties and kinds of social interventions implemented.

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