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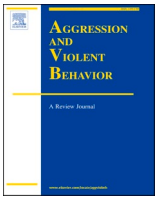

Systematic review and critical appraisal of instruments that measure children and adolescent protectors and family strengths against child maltreatment

José-Javier Navarro-Pérez [a], Sylvia Georgieva [b,*], Paula Samper [c], Jose M. Tomás [d], Patricia Sancho [b]

[a] Department of Social Work and Social Services, University of Valencia, Av. dels Tarongers, 4b, 46022 València, Spain
[b] Department of Developmental and Educational Psychology, University of Valencia, Av. de Blasco Ibáñez, 21, 46010 València, Spain
[c] Department of Basic Psychology, University of Valencia, Av. de Blasco Ibáñez, 21, 46010 València, Spain
[d] Department of Methodology for the Behavioural Sciences, University of Valencia, Av. de Blasco Ibáñez, 21, 46010 València, Spain

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ABSTRACT

Protective factors considered in this systematic review are characteristics of a child, family, or relationships within the family that decrease the probability of child maltreatment or abuse and can moderate or diminish negative outcomes associated with risk factors. The aim of this study is to critically appraise, compare, and summarize the methodological quality and psychometric properties of published research articles validating protective factor instruments related to children and adolescent characteristics and family strengths. A systematic search in ProQuest, Scopus, and Web of Science was performed using the Consensus based Standards for the selection of health status Measurement Instruments (COSMIN) risk of bias checklist. The constructs measured were diverse, with some patterns in validation of instrument where studies mainly focus on examining structural validity and internal consistency while other properties were less frequently examined. Results suggest that the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) and the Protective Factors Survey (PFS) have the strongest psychometric evidence, followed by the Child and Adolescent Social Adaptive Functioning Scale (CASAFS), the Children's Emotional Adjustment Scale (CEAS), and the Parental Alliance Inventory (PAI). This study provides relevant information on the available psychometric properties of some protective factor instruments validated from 2010 to 2021, which may be useful for researchers in selecting appropriate instruments and identifying gaps in knowledge.

1. Introduction

In 1974, the Child Abuse Prevention and Treatment Act (1974) (CAPTA), acknowledged that prevention of child abuse and maltreatment is possible, and finding effective ways to prevent it is a worthy aim to pursuit (Child Welfare Information Gateway, 2017). Years later, in the United Nations Convention of the Rights of the Child (UNCRC) of 1989, children's civil, political, economic, and social rights were stated. Their social rights were established, as well as their rights to be protected and provided with everything needed to accomplish their developmental needs (Ramiro, 2016). Thus, a duty of all nations was stipulated: to promote and preserve the positive development and wellbeing of children and adolescents.

Maltreatment can be conceived in two ways: 1) the harm to a child at the hands of a caregiver that can be proven, or 2) the perpetrated harm plus the potential harm (Cicchetti et al., 2000). According to Zuravin (1991), research should focus on this second conception in order to operationalize potentially dangerous behaviors for the child, and because early prevention is crucial in order to avoid the negative effects of maltreatment (Counts et al., 2010). In the same line, the developmental psychopathology perspective suggests that a variety of processes and conditions can lead to the same manifestation of disordered behavior. However, the same adverse event does not necessarily lead to the same consequences in every individual (Cicchetti et al., 2000). This

* Corresponding author at: Department of Developmental and Educational Psychology, Faculty of Psychology, University of Valencia, Av. de Blasco Ibáñez, 21, 46010 València, Spain.
E-mail address: sylvia.georgieva@uv.es (S. Georgieva).

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argument supports the need for complex models to explain the etiology of maltreatment.

Therefore, Belsky (1980) proposed his ecological model of child maltreatment based on Bronfenbrenner's (1977) ecological model. In this model, there are four levels that interact: 1) the ontogenic development, which includes personal characteristics associated with being a perpetrator of child maltreatment, 2) the microsystem (immediate environment as closer relationships with family and peers), 3) the exosystem (further environment regarding the community characteristics), and 4) the macrosystem (general environment as social and cultural values and laws). The last three would theoretically overlap with Bronfenbrenner's model.

Along with this perspective, Cicchetti and Lynch (1993) proposed an ecological-transactional model in which the different levels proposed by Belsky interact, and all levels present inherent potentiating factors and compensatory factors. Potentiating factors are vulnerabilities or challengers that increase the probability of maltreatment, while compensating factors are protective factors or buffers that may reduce the probability of maltreatment. Therefore, maltreatment occurs when the potentiating factors overweight the compensatory factors.

Another parallel model can be the resiliency model proposed in a review performed by Afifi and MacMillan (2011). In this model, protective factors are conceptualized as assets that can be utilized to promote resiliency in children at risk. In their review, they identified that a positive family environment as stability and supportive relationships seemed to be associated with resiliency development.

Therefore, we conceive protective factors as characteristics of a child, a family or of the relationships within the family that in interaction with other personal, familiar and contextual variables, may decrease the probability of child maltreatment or abuse (Sprague-Jones et al., 2019), or that can moderate or diminish the negative outcomes associated with risk factors (Panisch et al., 2020; Racine et al., 2020; Ridings et al., 2017). We therefore understand protective factors as a main piece in a complex process-oriented multivariate model (Pianta et al., 1989). Nevertheless, depending on the research questions and the analytic strategy, protective factors can be conceived as both main effects or mediators.

Protective factors are neither the absence of risk factors nor the opposite end of the same spectrum (Jessor et al., 1995). Following the model of Cicchetti and Lynch (1993), protective factors can be present in all four levels. Some of the putative ontogenic protective factors can be the child's own characteristics and resources as their emotional regulation (Alink et al., 2009), emotional competence (Kwok et al., 2015; Walsh et al., 2010), their resilience (Anyan et al., 2021; Racine et al., 2020; Yule et al., 2019), life skills and social and adaptive functioning (Schultz et al., 2009), their knowledge on certain types of abuse (Kim & Kang, 2017). Additionally, within the microsystem, we can consider the family environment (Austin et al., 2020; Counts et al., 2010), parental alliance (Nunes et al., 2021) positive family relations, good parental mental health, and positive child rearing skills (Cicchetti & Lynch, 1993). In the exosystem we can find that the availability of supportive services for parents as health, social and educational services and also services that address family level risk factors, as substance abuse for example, can act as protective factors (Austin et al., 2020) as well as a supportive church if the family is religiously involved (Cicchetti & Lynch, 1993). Finally, in the macrosystem are the cultural values and beliefs related to violence toward children (Cicchetti & Lynch, 1993) and the economic, gender, and tax policies and trends of the country (Austin et al., 2020).

A recent systematic review, performed by Austin et al. (2020), listed a number of risk and protective factors in individual, interpersonal, community and societal levels. In their review, they identified self-regulation, social competence, adaptive functioning and self-esteem as individual protective factors. Supportive parental relationship and parents having social and emotional support were identified as interpersonal protective factors. Neighborhood social cohesion and control, and availability of heal, social and educational resources were identified as community protective factors. Finally, societal protective factors were: paid parental level, earned income tax credits, increases at minimum wage and fewer restrictions on welfare benefits.

Another idea to consider is that both, risk and protective factors can be static or dynamic characteristics of the child, the family, or the environment. For example, prenatal maltreatment of past events of abuse are static factors, but school attendance is dynamic. In the case of protective factors, social competence of the child, for instance, might be more static compared to other factors, as for example the quality of relationships among the family members, or caregivers' economic power, which can be considered more subject to change over time. In this light, efforts toward discovering and promoting dynamic protective factors should be invested as they are more subject to changes over the course of an intervention (Heffernan & Ward, 2017; Navarro-Pérez & Pastor, 2017; Sprague-Jones et al., 2019).

There is extensive research on the positive effects of protective factors. Li et al. (2011) explored risk and protective factors for maltreatment among school children from ages 4 to 8 years. They found that children of mothers who were married, who had education for 12 or more years and children from families who had social support were less likely to experience maltreatment. Additionally, protective factors have been found to reduce the risk of suicidality in children at risk (Janiri et al., 2020), the probability of child-to-parent violence (Beckmann et al., 2021) and to promote resilience (Afifi & MacMillan, 2011).

Additionally, protective factors are not the same for all types of maltreatment. For example, having knowledge on sexual abuse can be a protective factor only against sexual abuse (Tutty, 2020), however, emotional competence can be a protective factor for several maltreatment types (Thorlacius & Gudmundsson, 2015; Thorlacius & Gudmundsson, 2019). In the same line, some protective factors can prevent maltreatment, while others can only reduce the negative behavioral and psychological outcomes after it has occurred. A classic example of this type of protective factor is resilience (Anyan et al., 2021; Daigneault et al., 2013; Listosella et al., 2019; Manrique & Alonso Tapia, 2022; Ungar & Liebenberg, 2011) but it can also be posttraumatic growth (Zhou et al., 2017). A recent review of the literature performed by King et al. (2021) examines several conceptualizations of resilience and examines the most commonly used measures for resilience. Authors of this study argue that a broader conceptualization for resilience should be used instead of understanding resilience as the mere absence of psychopathology after a traumatic event.

In the light of the previously discussed research results, there is a need to have available psychometrically sound, objective, and reliable instruments, which effectively assess protective factors (Counts et al., 2010). Traditionally, instruments have been based on deficit models, in a way that only risk factors were evaluated, while protective factors have long been assessed as purely the absence of risk factors (Navarro-Pérez & Pastor, 2017; Ross & Vandivere, 2009). However, this approach limits the amount of information collected, since the positive aspects of the child/adolescent and the family are ignored (Cress et al., 2016). Additionally, a strength-based assessment can positively contribute to family assessment processes by adding valuable information, which can help determine and implement appropriate interventions to prevent serious problems from emerging, as suggested by CAPTA (1974).

The focus on determining reliable and objective measurements of protective factors is relevant to the field because firstly, a strength-based approach has the potential to reach a greater number of families than deficit-based models because families feel less stigmatized, since they do not feel the need to acknowledge their deficits (Counts et al., 2010). Secondly, families and children can change and evolve over time improving their resources to face risk, and being able to assess and effectively intervene is crucial for risk prevention (Counts et al., 2010).

Standardized measures that evaluate the presence or absence of protective factors in children and adolescents are very scarce in the scientific literature (LeBuffe & Shapiro, 2004; Ogg et al., 2010). The few

ones available are mostly focused on individual protective factors as one single characteristic of a child or a family (Counts et al., 2010), for instance, resilience (Daigneault et al., 2013; Listosella et al., 2019), school engagement (Cage et al., 2019), family quality of life (García-Grau et al., 2017) or children's emotional adjustment (Thorlacius & Gudmundsson, 2015). However, there are very few instruments providing a comprehensive assessment of multiple protective factors (Conrad-Hiebner et al., 2015; Counts et al., 2010).

Recent research has focused on studying protective factors in children and their ability to moderate the effects of adversity and trauma (Listosella et al., 2019; Racine et al., 2020; Zhou et al., 2017). However, there is a scarcity of reliable and valid instruments to assess these protective factors in cases of child maltreatment and adversity (LeBuffe & Shapiro, 2004; Ogg et al., 2010). Thus, the aim of the current study is to critically appraise, compare, and summarize the methodological quality and psychometric properties of published research articles validating protective factors instruments related to children and adolescents characteristics, and also to family strengths. The aim of these articles should be to validate instruments or tools focused on children and adolescents and they should be published in the period from 2010 and 2021. This period was set in order to explore the most updated psychometric properties of instruments as these might change across generations along with social values and context. Additionally, we focus on this age range due to its importance in the primary process of socialization between individuals and families (Gekas, 2017).

In order to accomplish this aim, a systematic review and assessment of validation articles of a number of protective factors instruments was performed utilizing the Consensus based Standards for the selection of health status Measurement Instruments (COSMIN) risk of bias checklist (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018). We believe this study contributes to the existing knowledge as it can inform researchers on the characteristics and psychometric properties of the most validated protective factors instruments in the recent years. This information can be useful for choosing the most suitable instrument for every researcher's purposes.

2. Method

2.1. Eligibility criteria

The articles included were those directly or indirectly analyzing psychometric properties of instruments assessing protective factors of children, adolescents or the family. Inclusion criteria were the following: 1) articles published from January 2010 to December 2021, 2) articles published in English or Spanish language, and 3) studies published in journals with peer-reviewed process which are indexed in the Journal Citation Reports (JCR) and/or Scopus, assessed by Scimago Journal and Country Rank. Additionally, exclusion criteria were: 1) systematic reviews, 2) studies that do not include any instrument development or psychometric data, 3) gray literature (doctoral thesis, conference papers, press articles, etc.), and 4) studies that validate only a small part (one factor) of the original instrument.

2.2. Search strategy

The search was performed in two moments: a first search during the months of March, April and May in 2020, and a second search with the purpose of updating all published articles between January 2010 and December 2021. The following databases were searched: ProQuest, Scopus, and Web of Science. Selected languages were English and Spanish. Regarding the terms used for the search, four semantic groups were used: Children or adolescents, risk, protective factors and instruments or questionnaires. The first group focused on the age of the collective of interest, that is, all children and adolescents. However, some samples can be over 18 years old of age if the instrument is filled out by another person who is not the child/adolescent. The second group focused on risk of maltreatment. The third group was based on protective factors of children and/or their families. Finally, the last semantic group focused on the tools and instruments used to assess protective factors (see Table 1). These terms were searched in titles and abstracts of the articles.

2.3. Data collection process

Two independent investigators performed the same search in the databases. Firstly, they screened all titles and abstracts of studies. Secondly, the selected studies were thoughtfully read by both researchers. Disagreements regarding the inclusion of articles were discussed with a third investigator, as recommended by Bekhet and Zauszniewski (2012). After the first screening there was disagreements on the inclusion of two instruments. These disagreements were thoughtfully discussed with a third reviewer who was an expert on risk assessment and finally a decision on its inclusion or exclusion was made.

Finally, eligible studies were screened and assessed by utilizing information on the names of the instruments, authors of the studies and year of publication, characteristics of the instruments (factors, number of items, language of administration…), characteristics of the samples, quality of the studies, and psychometric quality of each instrument. This study followed the 'Preferred Reporting Items for Systematic Review and Meta-analysis Protocols' (PRISMA-P; Moher et al., 2015).

2.4. The COSMIN checklist for systematic reviews of PROMs

Assessment of methodological quality of studies and strength of evidence of instruments was performed utilizing the COSMIN checklist for systematic reviews of Patient-Reported Outcome Measures (PROMs) (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018), a modular tool aimed to asses methodological quality and psychometric properties of other tools, instruments or scales. From now on, PROMS will be used indistinguishable as instruments, scales or tools. COSMIN is divided into three main steps: 1) the assessment of the scientific rigor of the studies itself ("standards of measurement"); 2) the psychometric quality of the instrument itself, in other words, the good psychometric results of the instrument ("criteria"), and 3) Summarizing results based on the two previous steps.

1) Assessment of the methodological quality of selected studies considering three main qualities: content validity (2 boxes: PROM development and content validity), internal structure (3 boxes: structural validity, internal consistency, and cross-cultural validity/measurement invariance), and remaining measurement properties (5 boxes reliability, measurement error, criterion validity, hypothesis testing for construct validity, and responsiveness). Items of every box are scored from 1 (inadequate) to 4 (very good), while the overall score of each box is determined by the lowest score in it (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018).
2) Assessment of the quality of the PROM. This assessment was based on the updated criteria for good measurement properties shown in the COSMIN manual (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018) and scored on a three-point scale: sufficient (+), insufficient (−), and indeterminate (?). Each of these ratings is specified for each measurement property. For example, for criterion validity, sufficient (+) is scored when "Correlation with gold standard $\geq$ 0.70 OR AUC $\geq$ 0.70", insufficient (−) is scored when "Correlation with gold standard $<$ 0.70 OR AUC $<$ 0.70", and indeterminate (?) is scored when "Not all information for '+' is reported".
3) Summary of results indicating the strength of evidence of the PROM. In order to sum up information from the two previous steps, a summary table was completed based on the modified GRADE (Grades of Recommendation, Assessment, Development and Evaluation) approach. In this way, an overall assessment of the instrument is done according to four factors: (1) risk of bias (referring to the

Table 1
Terms used for the Boolean search.

Children, adolescent or family		Risk		Protective factors		Assessment
Child OR children OR childhood OR adolescence OR teenager OR early life OR family	AND	Risk OR adversity OR maltreatment OR abuse OR trauma OR victimization OR neglect	AND	Protective factors OR prevention OR strength-based assessment OR competency-based assessment strengths	AND	Assessment OR tool OR instrument OR scale OR questionnaire OR battery OR inventory OR structured OR recognition OR index

Note: Search terms were used in both, English and Spanish language.

methodological quality of the studies), (2) inconsistency (for example, unexplained inconsistency of results across studies), (3) imprecision (for example, small total sample size of the available studies), and (4) indirectness (for example, sample which is not the target population of the instrument). As it can be seen, some factors are related to the quality of the study itself, while others are related to the quality of the data and its psychometric evidence. It is scored on 5 points: strong, moderate, limited, conflicting, and unknown evidence. All studies start having "excellent" evidence, and they are downgraded based on the previously mentioned four factors. For example, when four studies are found with sufficient (+) results for structural validity, but they are of doubtful quality, the level of evidence will be downgraded for risk of bias from "high" to "moderate", and further downgrading can be considered based on the rest of

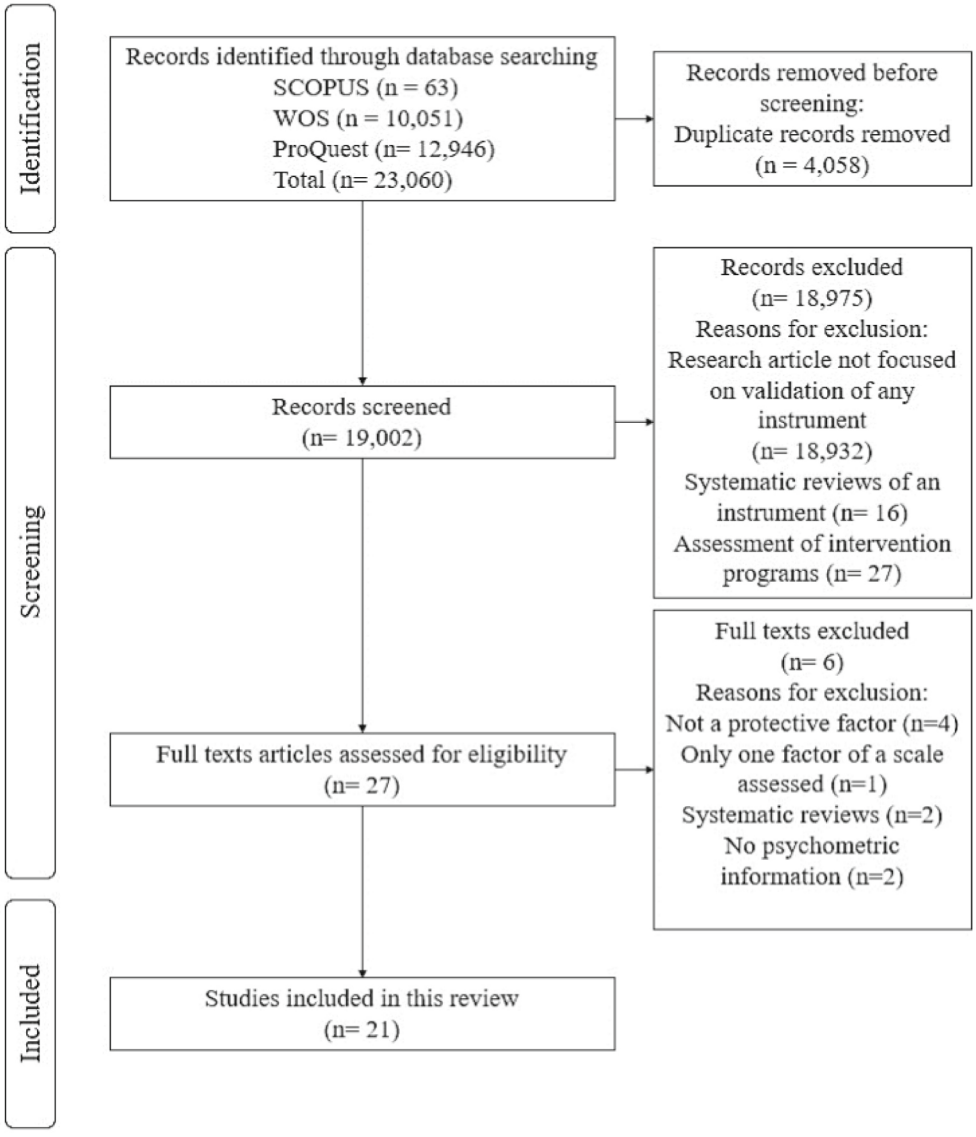

Fig. 1. Flowchart of the selection process.

factors. Therefore, strong evidence is reported when there are several good articles or one of excellent quality; moderate evidence if when there are several methodologically fair studies or one of good quality; limited evidence is considered when there are only studies with fair quality, and conflicting evidence is when there are only low-quality studies. Finally, unknown evidence is reported when the available studies reported no information on that psychometric property.

3. Results

A total of 23,060 research articles were identified through the search of three databases (SCOPUS, Web of Science, and ProQuest). Of these, 17.6 % (4058) were duplicates that were removed, leaving a total of 19,002 articles were screened by their title and abstract, from which 18,975 studies were excluded for different reasons, mainly because they were not focused on the validation of any instrument, followed by systematic reviews and articles focused on assessment of intervention programs. The screening resulted in a total of 27 studies to be assessed by a full read: six articles were excluded, either because of validating only a single factor of a scale, because the scale was not assessing protective factors, or because it was a systematic review that was not detected earlier. Finally, 21 articles were assessed by the COSMIN checklist (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018, see Fig. 1).

3.1. Characteristics of the included PROMS

In the final selection, there were 21 articles validating 14 different instruments. The main characteristics of the included PROMS can be seen in Table 2. The majority of instruments were assessed by one study except for the Protective Factors Survey (PFS) which was assessed by 4 studies, the Child and Youth Resilience Measure (CYRM-28) examined in 3 studies, and the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) and Children's Emotional Adjustment Scale (CEAS) which were validated in two studies each.

The constructs to be measured were very varied. In fact, although all instruments can be considered protective factors against child maltreatment and adversities, only one instrument focused on general protective factors (PFS), while the rest assessed specific characteristics of the child or adolescent, or their family. While all instruments are

Table 2
Characteristics of the included PROMS.

Instrument	No. of studies available*	Construct	Target population	Mode of administration	Subscales	Items	Available translations
Child and Youth Resilience Measure (CYRM-28)	3	Resilience	Youth	Self-report	Individual, relational, community, and cultural factors	28	French, Spanish
Child and Adolescent Social Adaptive Functioning Scale (CASAFS)	1	Social and adaptive functioning	Youth	Self-report	School performance, peer relationships, family relationships, and home duties/self-care	24–15	Spanish
Drug Free Schools and Communities Act (DFSCA)	1	School engagement	Youth	Self-report	Emotional, behavioral, and cognitive-behavioral engagement	11	English
The Preschool Behavioral and Emotional Rating Scales (PreBERS)	1	Emotional and behavioral strengths	Preschool children	Proxy	Emotional regulation, school readiness, social confidence, and family involvement	42	English
Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)	2	Emotional regulation	Children and adolescents	Self-report	Cognitive reappraisal and expressive suppression	10	English
Family Quality of Life scale (FaQoL)	1	Family quality of life	Families of young children at risk	Self-report	Family relationships, access to information and services, child functioning and overall life situation	40	Spanish
Posttraumatic Growth Inventory (PTGI)	1	Posttraumatic growth	Unclear	Self-report	Personal strength, new possibilities, relating to others, appreciation of life, and spiritual change	21	English, Chinese
Life Skills Assessment Scale (LSAS)	1	Life skills	Disadvantaged children	Proxy	Interacting with others, overcoming problems and finding solutions, taking initiative, managing conflict, and understanding and following instructions	5	English
The Protective Factors Survey (PFS)	4	Family protective factors	Families with children	Self-report	Family functioning, emotional support, concrete support, and nurturing and attachment	15, 22 24 or 25	English Spanish
Children's Knowledge of Abuse Questionnaires (CKAQ-10)	1	Knowledge levels of abuse prevention concepts	Children	Self-report	Inappropriate and appropriate touch	33	English
Children's Emotional Adjustment Scale (CEAS)	2	Emotional competence	Children	Proxy	Temper control, mood repair, anxiety control, and social assertiveness	47	–
Resilience Scale for Adolescents (READ)	1	Resilience	Adolescents	Self-report	Personal competence, social competence, structured style, social resources, and family cohesion.	28	Spanish, Icelandic, Italian and Polish
Subjective Resilience Questionnaire (SRQ)	1	Resilience	Adolescents	Self-report	Resilience in front of teachers, resilience in front of peers, and resilience in front of parents.	15	Spanish
The Parental Alliance Inventory (PAI)	1	Parental alliance	Parents	Self-report	–	20	Portuguese

* Indicates que this is the number of studies available for this specific search strategy.

meant to measure specific protective factors (as for example, school engagement or emotional regulation), only one of them (PFS) was specifically focused on general protective factors. In fact, from the 14 included instruments, we can appreciate that 11 of them focus on the child or adolescent characteristics itself, as their emotional competence, ability to adapt and regulate, or their life skills, while there are three instruments focusing on the family.

These instruments were included in the review as scientific literature establishes direct connections between conceptually distant positions as it could be risk and protection (Fenfang et al., 2011), as well as between border alignments: prevention and protection. In fact, for some authors the prevention of circumstances that generate risk is in itself protection (Barnard et al., 1988; Guterman, 1997). In fact, almost all of the constructs measured by these instruments have been justified in scientific

Table 3
Characteristics of the samples.

Instrument	Reference	n	Age in years (Mean, SD)	Gender (% female)	Country	Language
CYRM-28	Ungar and Liebenberg (2011)	1451 young people*	(16, 2.65)	52.1 %	Canada, China; Palestine, Israel, Colombia, Russia, India; United States, the Gambia, Tanzania, and South Africa	#
	Daigneault et al. (2013)	589 students	–[3]	59.7 %	Canada	French
		246 young people*	–[3]	47.5 %		
	Listosella et al., 2019	432 at-risk young people*	(14.99; 2.32)	45.1 %	Spain	Spanish
CASAFS	Gonzálvez et al. (2019)	345 children	(9.17; 1.03)	56.2 %	Spain	Spanish
		1032 students	(10.02; 1.77)	–[2]		
DFSCA	Cage et al. (2019)	2429 young people*	(10.18, 2.73)	53.3 %	United States	English
PreBERS	Cress et al. (2016)	909 children*	(3.93; 0.74).	49 %	United States	English
ERQ-CA	Gullone and Taffe (2012)	827 children and adolescents	(13.93, 2.46)	56.7 %	Australia	English
	Ng et al. (2019)	822 students*	(12.20; 0.81)	51 %	United States	English
FaQoL	García-Grau et al. (2017)	324 families with 687 young children*	(38.6, 18.60)[1]	–	Spain	Spanish
PTGI	Zhou et al. (2017)	T1–303 children	(9.91, 0.78)	49.8 %	China	Chinese
		T2–286 children	–[2]	–[2]		
LSAS	Kennedy et al. (2014)	1136 children and young people*	(12.2; 2.42)	–	India	–
PFS	Counts et al. (2010)	249 families*	–	–	United States	English
		689 families*	–	–		
	Conrad-Hiebner et al. (2015)	141 participants	–[3]	86.5 %	United States	Spanish
	Sprague-Jones et al. (2019)	213 parents	–	75.1 %	United States	English
		109 parents	–	81.7 %		
	Sahagún-Morales et al. (2021)	200 participants	(31.79; 13.12)	78 %	Mexico	Spanish
CKAQ-10	Tutty (2020)	1327 elementary school students (Grades 1–2)	–	–	Canada	–
		6319 elementary school students (Grades 3–6)	–	–		
CEAS	Thorlacius and Gudmundsson (2015)	606 children	(9.74; 2.09)	50.6 %	Iceland	–
	Thorlacius and Gudmundsson (2019)	1071 school students	(9.63; 2.06)	48 %	Iceland	–
READ	Anyan et al. (2021)	391 Spanish students	(12.41; 0.86)	51 %	Spain	Spanish
		379 Icelandic students	(12.41; 0.86)	5 %	Iceland	Icelandic
		460 Italian students	(12.41; 0.86)	55 %	Italy	Italian
		316 Polish students	(12.41; 0.86)	51 %	Poland	Polish
SRQ	Manrique and Alonso Tapia (2022)	531 Colombian students	(13.87; 1.75)	60.5 %	Colombia	Spanish
PAI	Nunes et al. (2021)	205 community parents	(38.39; 5.84)	52.20 %	Portugal	Portuguese
		273 parents of child welfare services*	(37.05; 8.07)	80.05 %		

Notes: n = number of participants, SD = standard deviation, % = percentage.
[#] Authors indicate that, when necessary, the instrument was translated into the local language, however, the countries in which it was translated were not indicated.
[*] Samples considered at risk.
[1] Age reported in months.
[2] Authors report no significant differences between gender and age but do not report the data.
[3] Age reported in ranges.

literature to act as protective factors (Alink et al., 2009; Austin et al., 2020; Cicchetti & Lynch, 1993; Kim & Kang, 2017; Kwok et al., 2015; Nunes et al., 2021; Schultz et al., 2009).

Regarding the subscales of the instruments, again, there is variety of different factors since there is a variety of constructs to be measured. We can perceive a general focus on different relationships of the child or adolescent as it appears in five instruments. Family involvement, environment and functioning is also recurring as it is assessed in five instruments as well. Additionally, internal regulation of the child or adolescent is examined in four studies, and finally, there are some highly specific scales about school engagement (Drug Free Schools and Communities Act, DFSCA) and child's knowledge on sexual abuse (CSAQ-10).

Additionally, it can be seen that the target populations were youth, children, and/or adolescents, (10 instruments) while three instruments targeted the family, and one was unclear. The most common method of administration was self-report, except for three PROMS where the instruments were filled out by another person, most commonly the main caregiver or a professional attending the family, who would answer about the child or adolescent (proxy).

When it comes to length and language of the PROMS, the number of items range from 5 to 47 items, while the mean number of items was 26 items. However, in the case of the PFS, the length of the instrument was changing between the different studies. Most of them were administered in English, although there were four instruments in Spanish, one instrument administered in French, one in Chinese, one in Portuguese, and specifically, one instrument that was administered in four countries (Spanish, Italian, Icelandic and Polish).

3.2. Characteristics of the samples

When we examine the participants of the studies (main characteristics shown in Table 3), we can appreciate that it is all children or adolescents, or they are the object of study although the instrument is filled out by other adults. The age range goes from a mean of 38.6 months to a mean of 16 years of age Gender was almost equally distributed in most samples except for three studies that had the majority of their sample composed by females (Conrad-Hiebner et al., 2015; Nunes et al., 2021; Sprague-Jones et al., 2019). However, distribution of age and gender was hard to know in some studies because: a) some authors reported age in age ranges, b) the authors claimed that that there was no significant difference in the subsamples but did not indicate their descriptive statistics, c) some authors just did not report either age or gender statistics and, d) some others reported age but not gender.

The number of participants in samples or subsamples ranges from a minimum of 141 participants to a maximum of 7646 school students. All participants were either young people (5 samples or subsamples), students (11 samples of subsamples), children (7 samples or subsamples) or their families (5 samples or subsamples).

Regarding the countries and languages of administration, we can find two international studies: Five studies were performed in the United States, all of them in English, four studies were performed in Spain and in Spanish, two studies from Iceland and authors did not mention the language of administration, and one study was made in Australia (in English), one in China (in Chinese), one in Portugal (in Portuguese), one in India and another in Canada, whose languages were unclear since both countries have two official languages.

Finally, there were eight studies examining samples considered at risk. They are shown in Table 3 with an asterisk.

3.3. Methodological quality of the studies

Methodological quality of eligible studies is summarized in Table 4. In this table, it can be seen that there is a general pattern of studies reporting mostly internal consistency (all studies) and structural validity (20 out of 21 studies). Additionally, hypothesis testing for construct validity, test-retest reliability and responsiveness were also quite prevalent (14, 7, and 6 studies out of 21, respectively). There were 5 studies developing an instrument and 5 testing measurement invariance, and only 2 studies testing content validity as specified by the COSMIN checklist. No study examined measurement error, and none of the included studies presented information regarding all eight COSMIN criteria.

Table 4
COSMIN results of the standards of measurement (methodological quality) of the assessed studies.

Psychometric property	Articles	Psychometric property	Articles
PROM development		*Reliability*	
Excellent		Excellent	
Good		Good	2; 7; 18
Fair	1; 17	Fair	3; 8; 11; 13
Poor	11; 12	Poor	
Unknown/NA	2; 3; 4; 5; 6; 7; 8; 9; 10; 13; 14; 15; 16; 18; 19; 20; 21	Unknown/NA	1; 4; 5; 6; 9; 10; 12; 14; 15; 16; 17; 19; 20; 21
Content validity		*Measurement error*	
Excellent		Excellent	
Good		Good	
Fair	13; 14	Fair	
Poor		Poor	
Unknown/NA	1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12; 15; 16; 17; 18; 19; 20; 21	Unknown/NA	1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 21
Structural validity		*Criterion validity*	
Excellent	3; 4; 5; 6; 7; 8; 9; 10; 12; 13; 14; 15; 17; 18; 19; 20; 21	Excellent	2;3; 18
Good	1; 2; 16	Good	
Fair		Fair	
Poor		Poor	
Unknown/NA	11	Unknown/NA	1; 2, 4; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15; 16; 19; 20; 21
Internal consistency		*Hypothesis testing for construct validity*	
Excellent	2; 3; 4; 6; 7; 8; 9; 11; 12; 13; 14; 15; 17; 18; 19; 20; 21	Excellent	2; 3; 4; 7; 12; 15; 17; 18; 19; 21
Good		Good	8
Fair	5; 16	Fair	11; 13; 20
Poor	1; 10	Poor	
Unknown/NA		Unknown/NA	1; 5; 6; 9; 10; 14; 16
Cross-cultural validity/ measurement invariance		*Responsiveness*	
Excellent	4; 8; 10; 13; 21	Excellent	2; 3; 7;
Good		Good	8
Fair		Fair	11; 13;
Poor	19; 20	Poor	
Unknown/NA	1; 2; 3; 5; 6; 7; 9; 11; 12; 14; 15; 16; 17; 18	Unknown/NA	1; 4; 5; 6; 9; 10; 12; 14; 15; 16; 17; 18; 19; 20; 21

Notes: 1: Ungar and Liebenberg (2011); 2: Daigneault et al. (2013); 3: Listosella et al., 2019; 4: Gonzálvez et al. (2019); 5: Cage et al. (2019); 6: Cress et al. (2016); 7: Gullone and Taffe (2012); 8: Ng et al. (2019); 9: García-Grau et al. (2017); 10: Zhou et al. (2017); 11: Kennedy et al. (2014); 12: Counts et al. (2010); 13: Conrad-Hiebner et al. (2015); 14: Sprague-Jones et al. (2019); 15: Sahagún-Morales et al. (2021); 16: Tutty (2020); 17: Thorlacius and Gudmundsson (2015); 18: Thorlacius and Gudmundsson (2019); 19: Anyan et al. (2021); 20: Manrique and Alonso Tapia (2022); 21: Nunes et al. (2021).

3.4. Criteria of measurement — quality of the assessed PROMS

Quality of the instruments was assessed according to the updated criteria for good measurement properties shown in the COSMIN manual (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018) rated as sufficient (+), insufficient (−) or indeterminate (?). Results are presented in Table 5. In this case, studies are individually rated on each psychometric property according only to their results and not their methodological quality (Table 4) or any other factors as risk of bias, inconsistency, imprecision and indirectness (Table 6).

Firstly, structural validity, and internal consistency were the most commonly examined qualities. However, from the 21 assessed studies, 71.44 % of the studies rated as sufficient for structural validity, and 66.66 % for internal consistency. There were some inconsistent results in one study in which the split sample technique for CFA was used, and results were sufficient in one half of the sample, but insufficient in the other half (García-Grau et al., 2017). On the other hand, internal consistency was examined in all selected studies, although not all of them obtained sufficient rating.

Test-retest reliability was only rated in four studies and three instruments. To assess this property, studies needed to report either ICC or weighted kappa. Rating was sufficient for only one instrument and study (CEAS; Thorlacius & Gudmundsson, 2019). It was not possible to rate 3 studies as they did not provide either ICC or weighted kappa. Additionally, measurement error was not tested in any of the included studies.

Hypothesis testing obtained an overall of 57.14 % sufficient results, and was rated as insufficient in two studies: one validating the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Ng et al., 2019), and therefore creating an inconsistency since another study examining the same instrument obtained good results (Gullone & Taffe, 2012); and another study validating the SRQ (Manrique and Alonso Tapia, 2022). It was not possible to rate in one study (Anyan et al., 2021) as it did not indicate the measures with which the correlations were performed. It could be concluded that results were sufficient for the rest of the instruments.

Measurement invariance was assessed in seven studies and instruments. Results of all studies were rated as sufficient except for the SRQ (Manrique and Alonso Tapia, 2022).

Additionally, criterion validity was examined in three studies and two instruments, obtaining a rate of only 9.52 % of sufficient results, while 4.76 % of the studies rated as insufficient. Regarding the instruments, CYRM-28 obtained contradictory results since one study was rated as sufficient and the other as insufficient; while CEAS obtained sufficient results with one study based on the criteria for good measurement properties (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018).

Finally, responsiveness was examined in six studies, all of them rated as sufficient, creating a total of 28.57 % of studies rated as good.

3.5. Strength of evidence

Finally, in order to summarize results, the strength of evidence of each instrument is presented in Table 6. In this assessment, as opposed to the quality of the instruments alone, four more factors are taken into consideration based on the modified GRADE criteria (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018): risk of bias, inconsistency, imprecision and indirectness.

With current evidence, it can be concluded that the instrument with the lowest strength of evidence is the Children's Knowledge of Abuse Questionnaires (CKAQ-10) as it has only been examined in structural validity and internal consistency, and both have been rated with

Table 5
COSMIN results of the criteria of measurement (quality of the PROMs).

Instrument	Article	Structural validity	Internal consistency	Reliability	Measurement error	Hypothesis testing for construct validity	Measurement invariance	Criterion validity	Responsiveness
CKAQ-10	Tutty (2020)	−	− .70[3]	?	?	?	?	?	?
DFSCA	Cage et al. (2019)	+	− .71[3]	?	?	?	?	?	?
LSAS	Kennedy et al. (2014)	?	+ .86	?	?	+	?	?	+
PreBERS	Cress et al. (2016)	+	+ .93–.99[4]	?	?	?	?	?	?
FaQoL	García-Grau et al. (2017)	−[1]	+ .85–.89	?	?	?	?	?	?
PTGI	Zhou et al. (2017)	+	− .88–.93[5]	?	?	?	+	?	?
READ	Anyan et al. (2021)	+	−[2] .58–.94[2]	?	?	+	+	?	?
SRQ	Manrique and Alonso-Tapia (2021)	+	+ .87–.96[4]	?	?	−	−	?	?
CYRM-28	Ungar and Liebenberg (2011)	−	− .88[3]	?	?	?	?	?	?
	Daigneault et al. (2013)	−	− .64–.84	−	?	+	?	−	+
	Listosella et al. (2019)	+	+ .71–.87	?	?	+	?	+	+
CASAFS	Gonzálvez et al. (2019)	+	+ .70–.75	?	?	+	+	?	?
CEAS	Thorlacius and Gudmundsson (2016)	+	+ .92–.95	?	?	+	?	?	?
	Thorlacius and Gudmundsson (2019)	+	+ .90–.95	+	?	+	?	+	?
PAI	Nunes et al. (2021)	+	+ .97	?	?	+	+	?	?
ERQ-CA	Gullone and Taffe (2012)	+	+ .75–.83	−	?	+	?	?	+
	Ng, et al. (2019)	+	− .65–.84[4]	−	?	−	+	?	+
PFS	Counts et al. (2010)	−	+ .74–.92	?	?	+	?	?	?
	Conrad-Hiebner et al. (2016)	+	+ .79–.91	?	?	+	+	?	+
	Sprague-Jones et al. (2019)	+	+ .77–.88	?	?	?	?	?	?
	Sahagún-Morales et al. (2021)	+	+ .72–.95	?	?	+	?	?	?
	Sufficient	71.44%	66.66%	4.76%	0%	57.14%	28.57%	9.52%	28.57%
	Insufficient	23.8%	33.34%	14.29%	0%	9.52%	4.76%	4.76%	0%
	Indeterminate	4.76%	0%	80.95%	100%	33.34%	66.67%	85.72%	71,42%

Notes: [1] Split sample technique is utilized, fit is acceptable in half of the sample, but it is not in the other half. [2]Problems with two dimensions in Italy and Poland. [3]Only alpha for total scale provided, not for each dimension. [4]Omega (ω) reported. [5]Provides alpha (α) in two times but not for each dimension

+	Sufficient
−	Insufficient
?	Indeterminate

Table 6
Strength of evidence of each PROM.

	Structural validity	Internal consistency	Reliability	Measurement error	Hypothesis testing for construct validity	Measurement invariance	Criterion validity	Responsiveness	% strong-moderate evidence
CKAQ-10	C	C	U	U	U	U	U	U	0%
DFSCA	S	C	U	U	U	U	U	U	12.5%
LSAS	U	S	C	U	L	U	U	L	12.5%
PreBERS	S	S	U	U	U	U	U	U	25%
FaQoL	M	S	U	U	U	U	U	U	25%
PTGI	S	C	U	U	U	S	U	U	25%
READ	S	C	U	U	S	L	U	U	25%
SRQ	S	S	U	U	C	C	U	U	25%
CYRM-28	L	L	C	U	S	U	M	S	37.5%
CASAFS	S	S	U	U	S	S	U	U	50%
CEAS	S	S	M	U	S	U	S	U	50%
PAI	S	S	U	U	S	S	U	U	50%
ERQ-CA	S	S	C	U	M	S	U	M	62.5%
PFS	M	S	U	U	M	S	U	M	62.5%
% strong-moderate evidence	78.57%	64.29%	7.14%	0%	50%	35.71%	14.29%	21.42%	
% limited conflicting evidence	14.29%	35.71%	21.43%	0%	14.29%	14.29%	0%	7.14%	
% unknown evidence	7.14%	0%	71.43%	100%	35.71%	50%	85.71%	71.44%	

Notes: Right hand column represents the % of strong-moderate evidence for each article, bottom row indicated the strength of evidence for each psychometric characteristic evaluated by COSMIN. [1]MI: Measurement Invariance, [2]ME: Measurement error

S	Strong
M	Moderate
L	Limited
C	Conflicting
U	Unknown

conflicting evidence, and information regarding the rest of the properties remains unknown. The following instruments are the DFSCA and the LSAS rated with only 12.5 % of strong-moderate evidence for psychometric qualities. Additionally, there are five instruments with 25 % of properties rated with strong or moderate evidence. These are the PreBERS, the FaQoL, the PTGI, READ and the SRQ. In the same line, the CYRM-28 obtained 37.5 % of strong-moderate evidence.

There were three instruments with 50 % of strong-moderate evidence: the CASAFS, CEAS, and PAI. Finally, the two instruments with highest percentage of strong and moderate evidence were the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) (75 %), and The Protective Factors Survey (PFS) (75 %).

Finally, if we consider the general information reported on psychometric properties, it can be seen that the most examined properties are internal consistency, and structural validity, while measurement error was not examined in one single study.

4. Discussion and conclusions

The main objective of the current study was to critically appraise, compare, and summarize the methodological quality and psychometric properties of published research articles validating individual and family protective factors instruments aimed to assess children and adolescents published in the period from 2010 and 2021. As stated by Panisch et al. (2020) and Ridings et al. (2017), it is essential to expand the focus from risk factors to include characteristics and conditions that moderate the negative outcomes associated with risk factors. To fulfill this aim, a systematic review of protective factors instruments was performed in thee of the main search databases from 2010 to 2021. This time limit was set because of the importance of having available updated instruments, since psychometric properties might vary across different generations and social contexts.

The first issue to address is the variety of instruments and constructs to be measured: there were 3 instruments assessing resilience, three other assessing family characteristics, and a variety of instruments assessing different emotional or behavioral resources and characteristics of children and adolescents. All included instruments assess characteristics which are considered to be protective factors either in a main effects role or as a moderator. It can be seen, based on the ecological-transactional model proposed by Cicchetti and Lynch (1993), that different protective factors coexist and interact on different levels. It is important to note that the objective of this review is not to establish "the best" protective factors PROM, but to provide a comprehensive review of the main psychometric properties of the existing protective factors instruments with the objective to facilitate researchers the choice of the most suitable and convenient tool for their research, being aware of the psychometric soundness (or lack thereof) soundness of the instrument. We strongly believe all instruments regardless of the construct they aim to measure should present robust psychometric properties, however, if an instrument does not present robust psychometric properties, it is important to point out this lack of information so that future research can address it.

Secondly, when we examine the date of the studies, the first result is that there is an increased number of instruments measuring protective factors from 2010 to 2021, especially after 2015 and reaching a maximum of published instruments in 2021. This is in accordance with literature since positive psychology, theories of positive growth, and therefore assessment of strengths has gained popularity in the last years. This is a positive result since focusing on the assessment of positive factors can contribute to early prevention and establish more effective positive interventions focusing on strengths and not deficits of families (Roygardner et al., 2020). It has been demonstrated that positive factors can diminish the association between childhood adversity and child trauma related distress (Racine et al., 2020), and therefore, positive assessment and interventions are a worthy aim to pursuit.

Additionally, although most instruments are self-reported because of

the number of benefits that this type of administration can bring to the research (as time and costs reduction), it is important to note that self-administration has several problems. The first problem is that there can be subjectivity in assessing somebody's own abilities, especially when it comes to children and adolescents that have been through adversities and might have an altered self-concept (Frazier, 2018; Kim et al., 2022). Furthermore, interpretation of items can vary depending on different cultural backgrounds and this fact could bias the measurement of the construct (Sprague-Jones et al., 2019). We would therefore suggest future development of protective factors instruments to be filled out by a third impartial person as it could be a qualified professional.

When it comes to addressing diversity, we can observe that the vast majority of instruments have been validated in North America, followed by Europe, and very few of them focused on Asia, Australia, South America or Africa. In fact, there was only two international studies examining the same instrument across different countries and cultures. This result is reasonable since positive psychology originated in the United States (Csikszentmihalyi & Seligman, 2000), and has gained especial popularity across Europe (Brdar & Rijavec, 2022; Ruini, 2022). Nevertheless, developing and testing protective factors instruments is even more necessary in countries with higher prevalence of child maltreatment, as it could be some countries in Asia (Stoltenborgh et al., 2015), Africa (Meinck et al., 2016), or South America (Jiménez-Borja et al., 2020; Raffaelli et al., 2018).

Based on our primary findings, we can confirm that there are certain trends in instrument validation studies, which primarily focus on assessing structural validity and internal consistency. Construct validity is also often tested through hypothesis testing, along with responsiveness in the form of convergent validity and/or group differences. However, criterion validity, measurement invariance, and reliability were less commonly assessed in the literature.

Criterion validity is the degree to which the scores of an instrument are an adequate reflection of a 'gold standard' (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018). It can be hard to establish a gold standard for protective factors given the variety of available instruments and constructs to be measure, hence, the only way of testing for this property would be relating the assessed PROM to another PROM that intends to measure the same construct, and in this case, the majority of instruments were related to similar, but different instruments, as it could be self-esteem, self-acceptance or family environment. In fact, most protective factors instruments were related to constructs intended to be negatively related, as anxiety, depression, and child abuse instruments. On the other hand, testing for measurement invariance and reliability can constitute a harder task since at least two different moments of measurement are needed for reliability, and at least two different groups are needed for invariance. The lack of available resources as time and funding could explain this lack of information in this case.

Finally, there was a total lack of information regarding measurement error. This property is understood as the systematic and random error of an individual's score that is not attributed to true changes in the construct to be measured (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018). It is most usually reported as the Standard Error of Measurement (SEM), Smallest Detectable Change (SDC) or Limits of Agreement (LoA). An important note is that the lack of information regarding a certain psychometric property does not necessarily imply limited evidence for it. In the first case, there is an informational gap to be filled in future research, while in the second case, however, the instrument should be used with extreme caution since it might lead to biased results. In this case, this lack of information is a relevant result that should be addressed in validations of future studies.

The implications of utilizing instruments with unknown psychometric properties can lead to uncertain and unreliable conclusions. This could indeed lead to possibly wrong or biased recommendations that, if applied, could constitute a waste of time and resources. For this reason, it is essential to have available psychometrically sound and reliable instruments to assess protective factors (Counts et al., 2010).

Our results suggest that the two instruments with the strongest psychometric evidence are the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) and the Protective Factors Survey (PFS), followed by the CASAFS, the CEAS, and PAI. This implies that when the aim of the study is assessing family protective factors, the PFS is a very strong measure for this purpose. On the other hand, if the aim is assessing children and adolescents' personal characteristics, especially when it comes to emotional competence (CEAS), social and adaptive functioning (CASAFS), emotional regulation (ERQ-CA), researchers might rely on these instruments. Additionally, the PAI, aimed at assessing parental alliance also obtained good evidence. Nonetheless, we insist that the selection of research instrument should be done according to each research objective, but we can conclude that these instruments, despite their lacks of information regarding measurement error, criterion validity, and reliability, can be used and should be further examined. Lack of information does not equal bad psychometric results and therefore future research should bridge this knowledge gap and provide information regarding these missing properties.

Contrariwise, the same cannot be established for the CKAQ-10, for instance, which obtained no evidence in its psychometric properties, since 6 out of 8 of them were not examined, and the two properties that were examined obtained conflicting evidence. We would recommend further validations of this instrument, as well as for the DFSCA, and the LSAS which obtained low evidence (12.5 %), and for the remaining instruments which's evidence was 25 % of strong-moderate evidence (PreBERS, FaQoL, PTGI, READ and SRQ).

Despite these results, it is necessary to point out that this systematic review presents several weaknesses. Firstly, the fact that the search was performed from 2010 to 2021 implied that relevant information might have been lost that was published before 2010 and during the course of 2022. This might have resulted in the loss of some relevant protective factors instruments published before 2010 or after 2022. Secondly, the utilization of the COSMIN tool checklist (Mokkink et al., 2017; Prinsen et al., 2018; Terwee et al., 2018) is extremely useful for performing systematic reviews of instruments, but as every tool, it allows some amount of subjectivity in the interpretation of items, as it could be items as "Was an appropriate approach used to analyze the data?" (box 2 Content Validity) or decisions regarding the appropriateness of a time interval between two measures (box 7 Measurement Error). Thirdly, it can be conceptually complicated identify a list of putative protective factors against child maltreatment as there are very few scientific reviews about the topic. To our knowledge, there are only two: one performed by Cicchetti et al. (2000), and a more recent review by Austin et al. (2020). This implies that maybe some other protective factors instruments have been lost in the selection process due to a lack of proper literature justification or lack of knowledge of the reviewers performing the process. We encourage future research to continue exploring this objective and to overcome these aforementioned limitations. Fourthly, this systematic review has focused on protective factors at the individual and family levels, whereas instruments at community and societal levels were not searched for. Therefore, new systematic reviews taking into account these higher levels of protective should be done.

This study provides relevant information regarding the state-of-the-art of the available information on psychometric properties of some of the protective factors instruments validated from 2010 to 2021 related to characteristics of children and adolescents and family strengths. We believe this information is useful for researchers in order to select the most suitable instrument for their research purposes being aware of the available information regarding the psychometric soundness of the instruments. Additionally, this study points out some existing gaps in knowledge that should be examined in further research. Furthermore, it is important to note that, although this systematic review focuses on protective factors instruments against child maltreatment, these measures (and its corresponding protective factors) can also be effective

against other negative situations. For example, school engagement can be a protective factor against juvenile delinquency and substance use (Navarro-Pérez et al., 2020; Wang & Fredricks, 2014), or child emotional regulation can act as a protective factor against depression (Kullik & Petermann, 2013).

Developing reliable instruments to assess protective factors is relevant for child welfare field because identifying and developing these strengths can reduce the effects of trauma, the risk of suicidality (Janiri et al., 2020), the probability of child-to-parent violence (Beckmann et al., 2021), and also increase the effectiveness of prevention and intervention programs (Banyard et al., 2017). In the same line, protective factors can improve positive socialization that is embedded in the current digital and wellbeing societies (Picornell-Lucas & Lopez-Pelaez, 2022). We additionally suggest for future research to develop interdisciplinary and global tools that can contribute with reliable information extracted from different informants in order to increase the reliability of information.

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CRediT authorship contribution statement

Conceptualization; José-Javier Navarro-Pérez and Paula Samper.
Data curation; Sylvia Georgieva and Patricia Sancho.
Formal analysis; José Manuel Tomás.
Funding acquisition; José-Javier Navarro-Pérez.
Investigation; José-Javier Navarro-Pérez and José Manuel Tomás.
Methodology; José Manuel Tomás and Sylvia Georgieva.
Project administration; Paula Samper and Patricia Sancho.
Resources; José-Javier Navarro-Pérez and Paula Samper.
Supervision; José-Javier Navarro-Pérez, Paula Samper and José Manuel Tomás.
Roles/Writing - original draft; Sylvia Georgieva and Patricia Sancho.
Writing - review & editing. - José-Javier Navarro-Pérez, Paula Samper and José Manuel Tomás.

Declaration of competing interest

Authors of the manuscript "Systematic review and critical appraisal of instruments assessing protective factors against child maltreatment in childhood and adolescence" state that there is no conflict of interest in publishing this research.

Data availability

The data that has been used is confidential.

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