

Towards an evidence-based pretrial risk assessment in Mexican juvenile offenders: A systematic review of relevant instruments using COSMIN guidelines

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Abstract: The Mexican Comprehensive Criminal Justice System for Adolescents (Sistema Integral de Justicia Penal para Adolescentes) is in urgent need of validated tools to help diminish the likelihood of pretrial failure, (that is, when juveniles interfere in one way or another with the course of the criminal process before the trial stage). To this end, this article aims to evaluate the measurement properties of relevant instruments to guide and support pretrial risk assessment in Mexican juvenile offenders. Firstly, a systematic review was conducted in PubMed, metasearch

engines (DGB-UNAM and Google Scholar), and databases using the COnsensus-based Standards for the selection of health Measurement Instruments (COSMIN) guidelines. As it was found that no validated pretrial risks assessment instruments had been published earlier in Mexico, we present a proposal based on a preliminary selection of five instruments suitable for pretrial risks assessment taking both analysis and theory into account. Since this is the first systematic review in the field, results provide evidence for developing pretrial risk tools to aid decision-making in the juvenile offenders sector in Mexico.

Keywords: pretrial risk, risk assessment, juvenile justice, systematic review, COSMIN

RESUMEN: El Sistema Integral de Justicia Penal para Adolescentes de México requiere urgentemente contar con instrumentos validados para ayudar a reducir la probabilidad de presentar una conducta procesal indebida, es decir, cuando los adolescentes interfieren de una u otra forma en el curso del proceso penal antes del juicio. Para ello, este artículo tiene el objetivo de evaluar las propiedades de medición de instrumentos relevantes que orienten y sustenten la evaluación de riesgos procesales de adolescentes mexicanos en contacto con el Sistema de Justicia Penal. En primer lugar, se realizó una revisión sistemática en PubMed, metabuscadores (DGB-UNAM y Google Scholar) y registros, utilizando la guía de los Estándares basados en el COnsenso para la selección de Instrumentos de Medición en Salud (COSMIN). Como se encontró que no habían sido publicados instrumentos de evaluación de riesgos validados en México, presentamos una propuesta basada en una selección preliminar de cinco instrumentos adecuados para evaluar riesgos procesales tomando en cuenta el análisis y la teoría. Como esta es la primera revisión sistemática en la materia, los resultados proveen de evidencia para desarrollar herramientas que coadyuven a la toma de decisiones en el sector de adolescentes en contacto con el Sistema de Justicia Penal de México.

Palabras clave: riesgo procesal, evaluación de riesgo, justicia juvenil, revisión sistemática, COSMIN.

Summary: I. *Introduction.* II. *Precautionary Measures and Pretrial Risks.* III. *Methods.* IV. *Results.* V. *Discussion.* VI. *Conclusions.* VII. *Conflict of Interest Statement.* VIII. *Acknowledgements.* IX. *References.*

I. Introduction

A systematic review of instruments aims to identify gaps in knowledge and assist in selecting the most suitable tool to measure the variable in question regarding a specific population.¹ In this case, we focus on tools for pretrial risk assessment in Mexican juveniles. A review can also provide information about measurement properties, defined as an aspect of the quality of an instrument,

¹ Cecilia A.C. Prinsen et al., *COSMIN guideline for systematic reviews of patient-reported outcome measures*, 27 *QUAL. LIFE RES.* 1147, 1148 (2018).

which in turn can be divided into three main domains, 1) validity, 2) reliability and 3) responsiveness. These properties are explained below.

Validity reflects the degree to which a tool measures the variable intended to measure, for instance, if it is adequately based on a general review (*face validity*), expert opinion (*content validity*), statistical confirmation of the underlying theoretical elements that compose the variable (structural validity), consistency with empirical evidence (*hypotheses testing*), adaptation of the original version of the tool in a different population (*cross-cultural validity*) and comparison with an instrument considered as a “gold standard” (*criterion validity*). *Reliability* indicates if the measurement is free of error, i.e., that changes in the score reflect changes in the variable under different conditions, for example, the degree of interrelatedness among different items (*internal consistency*) or consistency through repeated applications (*test-retest*). Last, *responsiveness* refers the ability to detect changes in the variable over time such as a change in the score of the tool². Each of these properties requires a particular type of study to assess them and this review describes the methodology used to analyze the studies of selected instruments for pretrial risk assessment.

II. Precautionary Measures and Pretrial Risks

In the 1960s, Pretrial Justice Services (PJS) were implemented in the United States of America (USA).³ Nowadays, they operate in different countries like Canada, the United Kingdom, Australia, Chile, and Mexico to create quality information for evaluating and supervising the conditions imposed by the Court.⁴ These conditions, called precautionary measures, look to guarantee the effectiveness of the criminal procedure and reduce the likelihood of pretrial failure.⁵

The Inter-American Commission on Human Rights⁶ defines pretrial failure as 1) failure to appear (or FTA) in court or flight and 2) hampering the criminal investigation. However, admission of pretrial misconduct varies across countries and jurisdictions. For instance, in North America, this failure is characterized by failure to appear and/or the commission of another public offense before

² COSMIN, *COSMIN Taxonomy of Measurement Properties* (last visited March 13, 2024), <https://www.cosmin.nl/tools/cosmin-taxonomy-measurement-properties/>

³ PRETRIAL JUSTICE INSTITUTE, PRETRIAL SERVICES PROGRAM IMPLEMENTATION: A STARTER KIT 3 (2010).

⁴ ANA AGUILAR & JAVIER CARRASCO, SERVICIOS PREVIOS AL JUICIO MANUAL DE IMPLEMENTACIÓN 25 (Instituto de Justicia Procesal Penal, AC 2d ed. 2013) (2011). Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, MANUAL DE SERVICIOS DE ANTELACIÓN AL JUICIO MECANISMOS PARA RACIONALIZAR EL USO DE LAS MEDIDAS CAUTELARES EN MATERIA PENAL 17 (2011).

⁵ AGUILAR & CARRASCO *supra* note 4 at 15. Also Rene Octavio Cardona, *Medidas cautelares: Sus conceptos finalidades características reglas y principios para su imposición*, 27 REVISTA IFDP. 7, 82 (2019).

⁶ THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS, REPORT ON THE USE OF PRETRIAL DETENTION IN THE AMERICAS 8 (2013).

the end of the trial, a situation which is also known as public safety.⁷ In Latin America, pretrial failure consists of failure to appear; acting against personal integrity or putting the life of a victim, offended party, witnesses or the community at risk; and/or interfering with the criminal investigation by altering or falsifying evidence, intimidating witnesses and threatening or hampering the work of the actors involved.⁸

According to theoreticians⁹ and international Juvenile Justice standards,¹⁰ precautionary measures must comply with the principles of *minimum intervention* while promoting non-custodial measures, *rationality* according to the impact caused by behavior, *suitability* to a given objective, and *necessity* based on a selection of the measures that are the least restrictive of rights. Therefore, preventive detention must be used as a last resort, for the shortest possible time and when there is a need for caution due to pretrial risk. To this end, there is a diverse catalog of non-custodial measures, which include periodic appearances in court, prohibition from leaving a specific territory, and banning contact with certain persons.¹¹

Pretrial Risk Assessment

In 1993, the *Juvenile Detention Alternatives Initiative* (JDAI) was created with the primary objectives to encourage non-custodial measures, avoid overcrowding facilities, improve conditions in detention facilities, and deter pretrial failure.¹² To achieve this, one fundamental strategy is the implementation of evidence-based pretrial risk assessment instruments (RAI) that assist judicial decision-making regarding the best precautionary measures,¹³ while ensuring that personal characteristics of the accused and prior criminal charges do not bias decisions.¹⁴ This could be one reason why violence RAI are not suitable to assess pretrial

⁷ SARAH L. DESMARAIS, & EVAN M. LOWDER, PRETRIAL RISK ASSESSMENT TOOLS: A PRIMER FOR JUDGES PROSECUTORS AND DEFENSE ATTORNEYS 3 (2019). Also DAVID STEINHART, JUVENILE DETENTION RISK ASSESSMENT: A PRACTICE GUIDE TO JUVENILE DETENTION REFORM 10 (2006).

⁸ AGUILAR & CARRASCO, *supra* note 4 at 17, 54-5. Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 4 at 24.

⁹ Cardona, *supra* note 5 at 103-05.

¹⁰ Committee on the Rights of the Child, General Comment No 24 (2019) on Children's rights in juvenile justice, ¶ 85, 87, U.N. Doc. CRC/C/GC/24 (Sept. 18, 2019). Also G.A. Res. 44/25, ¶ 40 U.N. Doc. A/RES/44/25 (Nov. 20, 1989). Also G.A. Res. 45/113, ¶ 17, 18 U.N. Doc. A/RES/45/113 (Dec. 14, 1990).

¹¹ THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS, JUVENILE JUSTICE AND HUMAN RIGHTS IN THE AMERICAS 271, 272 (2011).

¹² STEINHART, *supra* note 7 at 5.

¹³ SARAH L. DESMARAIS, & EVAN M. LOWDER, *supra* note 7. Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 4 at 42. Also STEINHART, *supra* note 7 at 8-9.

¹⁴ Ley Nacional del Sistema Integral de Justicia Penal para Adolescentes [L.N.S.I.J.P.A.] [Law of the Comprehensive Criminal Justice System for Adolescents], as amended, Diario Oficial de la Federación [D.O.F.], December 20, 2022. Articles 27, 37.

failure in juvenile offenders because risk factors like criminal sentences, personality traits, substance use and friends with antisocial behaviors are mainly applicable for predicting violent recidivism,¹⁵ while pretrial risks focus on information relevant to procedural purposes as a means to lower the probability of pretrial failure while the ruling is being determined. Even though both take into account general principles of risk assessment (e.g., the intensity of intervention should be proportional to the level of risk obtained through evidence-based factors), violence and pretrial failure are different behaviors that require a distinctively different approach.

Guidelines establish that pretrial RAI should take a risk-protective approach through an evaluation of individual, contextual and situational factors based on empirical and normative criteria.¹⁶ Some minimum areas to be assessed¹⁷ include community ties, delinquent behavior, and collateral factors (Table 1). This information is then verified through interviews (face-to-face or by telephone) with informants such as family, teachers, or friends. Domiciliary visits, a review of legal files, and other types of documentation may also be considered.¹⁸ Once the information is verified, a risk assessment is made by calculating an overall and behavior-specific risk score that guides the release or detain decision.¹⁹

¹⁵ DEBORAH KOETZLE ET AL., GUÍA PRÁCTICA DE EVALUACIONES DE RIESGOS Y NECESIDADES PARA JÓVENES EN AMÉRICA LATINA Y EL CARIBE 6, 7, 9-10, 14-7 (2021), <https://www.air.org/sites/default/files/2021-10/Guia%20practica%20de%20evaluaciones%20de%20RNA%20para%20jovenes.pdf>. Also Sarah L. Desmarais & Samantha A. Zottola, *Violence risk assessment: Current status and contemporary issues*, 3 MARQ. L. REV. 793, 795, 798 (2020).

¹⁶ SARAH L. DESMARAIS, & EVAN M. LOWDER, *supra* note 5 at 4. Also CHARLES SUMMERS & TIM WILLIS, PRETRIAL RISK ASSESSMENT RESEARCH SUMMARY 4-5 (2010). Also MARIE VANNOSTRAND & GENA KEEBLER, PRETRIAL RISK ASSESSMENT IN THE FEDERAL COURT FOR THE PURPOSE OF EXPANDING THE USE OF ALTERNATIVES TO DETENTION 44 (2009).

¹⁷ AGUILAR & CARRASCO, *supra* note 4 at 54-5, 69. Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 4 at 33-5, 44. Also STEINHART, *supra* note 7 at 30-40.

¹⁸ AGUILAR & CARRASCO, *supra* note 4 at 73, 75. Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 4 at 37-41.

¹⁹ AGUILAR & CARRASCO, *supra* note 4 at 76. Also STEINHART, *supra* note 7 at 5, 9.

Table 1. Required minimum sections in juvenile pretrial risk assessment instruments

Section	Content
Community Ties	Residential stability, cohabitants, economic dependents, employment stability, education, family and peer relationships, facilities to leave the country or remain hidden, and social context
Delinquent Behavior	Current offense, legal status, prior and pending cases or petitions, infractions, behavior in detention, severity of the foreseen sanction, weapon involvement, aggression against victim or witnesses, prior pretrial misconduct, and violations of prior judicial conditions
Collateral Factors	Aggravated or mitigated risk score in previous areas, including the age at intake, family environment safety and stability, escape or runaway history, school performance and attendance, first offense, degree of involvement in the offense, mental health condition, etc., not to be considered if not supported by the information system

Note. These elements are merely enunciative, but not limited to other areas of evaluation. Developed by the author based on the guidelines established by Pretrial Justice Services.²⁰

In the USA, the Pretrial Justice Institute (PJI) and the National Association of Pretrial Service Agencies (NAPSA) created guidelines and standards for pretrial release and diversion.²¹ Pioneer states like California, Florida, New Mexico, and Virginia have implemented and validated detention RAI for juvenile offenders. To date, more than 15 US states have implemented them.²²

In Latin America, some efforts have been made since the implementation of the Accusatory Criminal Justice System. Mexico²³ and Chile²⁴ have developed pretrial justice service implementation manuals, comprising a comprehensive model of evaluation and supervision with pretrial risk assessment standards. In Mexico, pretrial justice services are commonly called Unidades de Medidas Cautelares (UMECAs).²⁵ The UMECA of the State of Morelos in Mexico was one of the first to implement RAI,²⁶ but its measurement properties are unknown, much less its impact on pretrial release and detention rates²⁷ even

²⁰ AGUILAR & CARRASCO, *supra* note 17. Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 17. Also STEINHART, *supra* note 17.

²¹ PRETRIAL JUSTICE INSTITUTE, *supra* note 3 at 1, 22, 25-8. Also THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 4 at 18.

²² STEINHART, *supra* note 7 at 8,19.

²³ AGUILAR & CARRASCO, *supra* note 4 at 11-3.

²⁴ THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 4 at 6-7.

²⁵ AGUILAR & CARRASCO, *supra* note 4 at 16.

²⁶ *Id.* at 23, 140

²⁷ STEINHART, *supra* note 7 at 17.

though it is used for determining the rationality and suitability of precautionary measures.²⁸

When designing a new tool, it is recommendable to examine the instruments of different pretrial justice services in order to identify common variables, especially those that have been effective and validated in the referral population.²⁹ This underlines the urgency of conducting pretrial risk assessments based on validated tools with adequate measurement properties which simultaneously meet theoretical and normative risk assessment criteria, especially for juveniles in conflict with the law, a person between 12 and 17 years of age accused of criminal behavior.³⁰

Hence, a standardized procedure is needed to select the most suitable instruments to assess pretrial risks along the lines of the protocol developed by the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) initiative, which seeks to reinforce a selection of outcome measurement instruments in clinical and research fields.³¹

This study aims to assess and summarize the quality of measurement properties of pretrial risk assessment instruments for Mexican juveniles in the Comprehensive Criminal Justice System for Adolescents (Sistema Integral de Justicia Penal para Adolescentes or SIJPA), through a systematic review using the COSMIN methodology.

III. Methods

This systematic review follows COSMIN guidelines for searching and evaluating measurement properties:³²

1. Search Strategy

A literature review was performed in 1) the PubMed database 2) metasearch engines;³³ the UNAM General Office for Libraries and Digital Information

²⁸ Código Nacional de Procedimientos Penales [C.N.P.P.] [National Code of Criminal Procedures], as amended, Diario Oficial de la Federación [D.O.F.], April 25, 2023. Art. 156.

²⁹ AGUILAR & CARRASCO, *supra* note 4 at 107. Also STEINHART, *supra* note 7 at 14-5.

³⁰ Ley Nacional del Sistema Integral de Justicia Penal para Adolescentes [L.N.S.I.J.P.A.] [Law of the Comprehensive Criminal Justice System for Adolescents], as amended, Diario Oficial de la Federación [D.O.F.], December 20, 2022. Art. 1.

³¹ Prinsen et al., *supra* note 1 at 1150-54.

³² Caroline B. Terwee et al., *COSMIN methodology for evaluating the content validity of patient-reported outcome measures: A Delphi study*, 27 *QUAL. LIFE RES.* 1159, 1162-67 (2018). Also Lidwine B. Mokkink, H. C. W. de Vet et al., *COSMIN risk of bias checklist for systematic reviews of patient-reported outcome measures*, 27 *QUAL. LIFE RES.* 1171, 1173-77 (2018). Also Lidwine B. Mokkink, M. Boers et al., *COSMIN Risk of Bias tool to assess the quality of studies on reliability or measurement error of outcome measurement instruments: A Delphi study*, 20 *BMC MED. RES. METHODOL.* 1, 6-10 (2021).

³³ These include various sources, from online repositories, universities, professional societies

Services (DGB-UNAM, in Spanish) and Google Scholar, and 3) libraries found on pretrial organization websites; Criminal Procedure Justice Institute (IJPP, in Spanish), Juvenile Justice Advocates International (JJAI) and Institute for Legal Research (IJJ, in Spanish).

The Peer Review of Electronic Search Strategies (PRESS) 2015 Checklist³⁴ and the search strategy of the COSMIN with a sensitive filter for studies on measurement properties³⁵ were taken into account for a more precise search (Table 2). Previously specified criteria were considered for potential article selection (Table 3). Language or time restrictions (from its inception to June 15, 2022) were not placed in order to make the search as extensive as possible.

Table 2. Search strategy used per database

Database	Search terms
PubMed	(pretrial OR detention OR probation) AND (“Risk Assessment”[Mesh] NOT “violence risk”) [†] AND (“Adolescent”[Mesh] OR juvenile OR youth) AND measurement properties filter [‡]
DGB-UNAM [§]	(pretrial OR detention assessment OR detention risk OR public safety risk OR failure to appear OR FTA OR flight risk) AND (adolescent* OR juvenile OR youth) AND (validation OR psychometri* OR clinimetr* OR development)
Google Scholar	(“pretrial risk” OR “pretrial failure” OR “public safety risk” OR “failure to appear”) AND (adolescent* OR juvenile OR youth) AND (Mexico OR Latino) AND (“validation study” OR psychometri*)
Institute for Legal Research (IJJ)	“adolescente” AND “cautelar”
Other websites [¶]	No search terms were used. A manual review of their resources was conducted.

[†] Some violence risk instruments assess general recidivism which include violating probation or parole conditions³⁶ that could be compatible with pretrial risk assessment. If this were the case, the search terms would include them in the results.

and databases such as PsyArticles, PsycINFO, Criminal Justice Database, SAGE, ScienceDirect, Scopus, Web of Science and Wiley Online Library. See UNAM, *Recursos electrónicos*, Dirección General de Bibliotecas y Servicios Digitales de Información (Feb. 26, 2024), <https://www.bidi.unam.mx/index.php/colecciones-digitales/bases-de-datos/ver-todos-los-recursos>

³⁴ Jessie McGowan et al., *PRESS peer review of electronic search strategies: 2015 guideline statement*, 75 J. CLIN. EPIDEMIOL. 40, 41-4 (2016).

³⁵ Caroline B. Terwee et al., *Development of a methodological PubMed search filter for finding studies on measurement properties of measurement instruments*, 18 QUAL. LIFE RES. 1115, 1121-23 (2009).

³⁶ Desmarais & Zottola, *supra* note 15 at 797.

‡ Filter developed by Terwee et al.³⁷ to find studies on measurement properties

§ Filtered by type of resources: academic publications, electronic resources, and reports

¶ Includes Criminal Procedure, Justice Institute³⁸ and Juvenile Justice Advocates International³⁹

Table 3. Inclusion and exclusion criteria for selection of studies

Criteria	Description
Inclusion	<ul style="list-style-type: none">• Mexican or Latino from 12 to 17 years old †• Detained population or on probation• Development or validation study• Pretrial or detention risk assessment instrument
Exclusion	<ul style="list-style-type: none">• General or clinical population• Other types of study, including studies in which pretrial or detention risk assessment instruments used to validate another instrument• Violence or recidivism risk assessment instrument

† For development studies of instruments not originally written in Spanish, other population groups were used for reasons of inclusion.

An additional strategy was proposed in the event that no pretrial RAI were found. Since it is an acceptable practice to consider instruments developed with similar population characteristics and theoretical models,⁴⁰ an open database from the Mexican Government was consulted⁴¹ to search for instruments from National Surveys with juveniles assessing the recommended risk assessment variables (Table 1).

In this regard, an advanced search was used in the *Gobierno* section with the terms “encuesta nacional,” “Adolescentes,” and “Mujeres” as filters. The selection of surveys was made based on titles, objectives, and conceptual design. Potential resources for information on pretrial risk assessment underwent a general review of the questionnaire contents for face validity.

Once a potential instrument was identified, another search was performed using the search terms listed in Table 4 to find measurement property studies including Mexican or Latino juveniles. The selection of articles was made based on the title and the abstract. All articles were reviewed independently by two reviewers. The article was included for analysis if at least one reviewer

³⁷ Terwee, *supra* note 35.

³⁸ Instituto de Justicia Procesal Penal, *Biblioteca (Acervo)*, <https://www.ijpp.mx/media/biblioteca/> (last visited June 21, 2023).

³⁹ Juvenile Justice Advocates, *Library*, <https://www.ijadvocates.org/library/> (last visited June 21, 2023).

⁴⁰ AGUILAR & CARRASCO, *supra* note 29. Also STEINHART, *supra* note 29.

⁴¹ Mexican Government, *Búsqueda de trámites información y participación ciudadana*, <https://www.gob.mx/busqueda?utf8=✓> (last visited March 13, 2022).

considered it relevant. References were also checked for potentially relevant studies.⁴²

Table 4. Search strategy used for development or validation studies

Database	Search terms
PubMed †	“Measurement instrument”‡ AND (“Adolescent”[Mesh] OR juvenile OR youth) AND measurement properties filter§
DGB-UNAM¶	“Measurement instrument”‡ AND (adolescent* OR juvenile OR youth) AND (validation OR psychometr* OR clinimetr* OR development)
Google Scholar	English: “Measurement instrument” AND adolescent* AND (validac* OR psicometr*) Spanish #: “Measurement instrument” AND adolescent* AND (validac* OR psicometr*)

Note. Searches were conducted separately for Spanish and English sources.

† A validation study filter was applied, except for the *Parent-Child Conflict Tactics Scale*.

‡ Replaced by each instrument name (Spanish and English) or abbreviations, if applicable, as text words. Some alternatives were used specifically for each language. In *English*, the terms Social Insecurity Perception Scale, “risk perception scale” OR “social insecurity perception scale” were used. For *Spanish*, the terms Social Insecurity Perception Scale, “escala percepcion inseguridad social” OR “escala inseguridad percibida” were used, and APQ “parentalidad alabama” OR “practicac parentales alabama” OR “estilos parentalidad alabama” were also used. The preposition “de” in an instrument’s name in Spanish was not included as search term, except in the case of Google Scholar.

§ Filter developed by Terwee et al.⁴³ to find studies on measurement properties

¶ Filtered by type of resources: academic publications and thesis

For the *Alabama Parenting Questionnaire*, instrument names (“parentalidad alabama” and “practicac parentales alabama”) were used in separate searches.

2. Evaluation of Measurement Properties

According to COSMIN methodology, the assessment was performed in three stages.⁴⁴ Two reviewers conducted analyses independently and an additional reviewer resolved any discrepancies.

⁴² Prinsen et al., *supra* note 31.

⁴³ Terwee et al., *supra* note 35.

⁴⁴ Prinsen et al., *supra* note 31.

A. Evaluation of development and content validity⁴⁵

Consideration was given to general design characteristics, such as theoretical framework, population characteristics, sample size, methodology relevancy, and statistical analyses for concept elicitation, identification of items, and pilot testing. Content validity includes the evaluation of relevance, comprehensiveness, and comprehensibility. The criteria of each study were scored on a four-point scale ranging from *inadequate* (I) to *very good* (V) using the COSMIN Risk of Bias Checklist⁴⁶ to assess the methodological quality of studies and determine whether the results are reliable from a total score based on its lowest rating.

In this section, the design criteria⁴⁷ for a study performed in a sample representing the target population and qualitative methodology for concept elicitation was modified according to the literature⁴⁸ that considered the examination of instruments with compatible theoretical models a suitable methodology.

B. Evaluation of other measurement properties⁴⁹

The methodological quality of construct validity, criterion validity, reliability, and responsiveness were examined by sample size, method and statistical analysis suitability, and description of bias. Similarly, a four-point scale rating (*Inadequate to Very good*) was used for each set of criteria and the lowest rating was reported as the total score. In addition, values were compared against criteria for *good measurement properties*⁵⁰ to determine if the measurement property was *sufficient* (+), *insufficient* (-) or *indeterminate* (?).⁵¹

⁴⁵ Terwee et al., *supra* note 32.

⁴⁶ Mokkink, de Vet et al., *supra* note 32. Also Mokkink, Boers et al., *supra* note 32.

⁴⁷ “5.-Was the PROM development study performed on a sample representing the target population for which the PROM was developed?” The Not Applicable (NA) rating was added: *Study was not performed in a sample representing the target population* and the Inadequate rating was eliminated.

⁴⁸ “6.- Was an appropriate qualitative data collection method used to identify relevant items for a new PROM? Rating changed to Very Good: *Widely recognized or well justified qualitative [or quantitative] method used, suitable for the construct and study population*, Adequate: *Assumable that the qualitative [or quantitative] method was appropriate and suitable for the construct and study population, but not clearly described*, and Doubtful: *[Unjustified] method(s) or doubtful whether the method was suitable for the construct and study population*.

⁴⁹ AGUILAR & CARRASCO, *supra* note 29. Also STEINHART, *supra* note 29.

⁴⁹ Mokkink, de Vet et al., *supra* note 32. Also Mokkink, Boers et al., *supra* note 32.

⁵⁰ Cecilia A.C. Prinsen et al., *How to select outcome measurement instruments for outcomes included in a “Core Outcome Set”—A practical guideline*, 17 TRIALS. 1, 7-8 (2016). Also see Prinsen, et al., *supra* note 31 at 1152.

⁵¹ The rating criteria for structural validity were modified. An additional criterion for sufficient Exploratory Factor Analyses (EFA) was added based on Prinsen et al., *supra* note 49: *First factor accounts for at least 20% of the variability AND ratio of the variance explained by the first to the second factor greater than 4 OR Bi-factor model: Standardized loadings on a common factor >0.30 AND correlation between individual scores under a bi-factor and unidimensional model >0.90*

*C. Evaluation of quality of evidence*⁵²

If more than one study assessing a measurement property was found, results would be qualitatively summarized per instrument and compared against the criteria for *good measurement properties* to determine whether the measurement property is *sufficient* (+), *insufficient* (-), *inconsistent* (\pm) or *indeterminate* (?). For development and content validity, ten criteria for good content validity were graded based on studies and the reviewer's rating.⁵³ Next, an overall rating per criteria was assigned, prioritizing the study results to reduce subjective judgment. Lastly, the quality of evidence was rated using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach, starting from *high quality* and progressively downgraded for risk of bias, inconsistency, imprecision, and indirectness, depending on whether it was *serious*, *very serious* or *extremely serious*.

IV. Results

1. Search Results

The results of the first research strategy were 1) PubMed: 34 articles, 2) DGB-UNAM: 66 articles, and 3) Google Scholar: 149 articles. No instruments were found specifically for Mexican or Latino populations. No publications were found on Criminal Procedure Justice (28 reports), Juvenile Justice Advocates International (18 reports) and Institute for Legal Research (6 articles, 2 reports) websites either. Consequently, the second strategy was employed.

From the findings of the second strategy (Figure 1, Search 1), one survey was selected since it was the only report with previous validation: Mexico National Survey of Drug Use Among Students (ENCODE, in Spanish).⁵⁴ Surveys with juvenile offenders⁵⁵ were excluded due to the lack of information on the scale design or validation in the methodology report. According to variables in pretrial RAI, five scales were selected: 1) the *Peer Scale* (Escala de Grupo de Amigos),⁵⁶ 2) the *Social Insecurity Perception Scale* (Escala de Percepción de Inse-

⁵² Prinsen et al., *supra* note 31.

⁵³ Terwee et al., *supra* note 32.

⁵⁴ NATIONAL INSTITUTE OF PSYCHIATRY ET AL., ENCUESTA NACIONAL DE CONSUMO DE DROGAS EN ESTUDIANTES (ENCODE) (July 12, 2014), <https://www.gob.mx/salud%7Cconadic/documentos/encuesta-nacional-de-consumo-de-drogas-en-estudiantes-2014-encode>

⁵⁵ ELENA AZAOLA, DIAGNÓSTICO DE LAS Y LOS ADOLESCENTES QUE COMETEN DELITOS GRAVES EN MÉXICO 18-19 (2015). https://www.casede.org/BibliotecaCasede/Diagnostico_adolescentes.pdf Also NATIONAL INSTITUTE OF STATISTICS AND GEOGRAPHY, ENCUESTA NACIONAL DE ADOLESCENTES EN EL SISTEMA DE JUSTICIA PENAL (ENASJUP) (2017). <https://www.inegi.org.mx/programas/enasjup/2017/>

⁵⁶ NANCY GIGLIOLA AMADOR & MAYA ISELDA CAVERO, EL CONSUMO DE COCAÍNA EN LOS ADOLESCENTES Y SU RELACIÓN CON EL AMBIENTE FAMILIAR EL GRUPO DE PARES Y LA AUTOESTIMA (2004)

guridad Social),⁵⁷ 3) the *Alabama Parenting Questionnaire* (APQ),⁵⁸ 4) the *Family Environment Scale* (FES) (Escala de Ambiente Familiar),⁵⁹ and 5) the *Parent-Child Conflict Tactics Scale* (CTSPC) (Escala de Tácticas de Conflicto Padre- Hijo).⁶⁰

These studies yielded 1195 results (Figure 1, Search 2) although the *Peer Scale* was removed since no relevant studies were found therein. After a full-text screening, two additional scales were included: *Family Environment Scale for Adolescents* (Escala de Ambiente Familiar para Adolescentes or EAFA)⁶¹ and *FES-Short Form* (Escala de Ambiente Familiar-Versión abreviada).⁶²

The main characteristics of the instruments are described in Table 5. All include self-report tools which mostly assess different aspects of the parent-child relationship, especially from the child's point of view, using a 4-point ordinal scale or predefined frequency categories. The *Social Insecurity Perception Scale* assesses the social environment.

Of these studies, 71% (n=5) were carried out with Mexicans. US studies (29%, n=2) consist of development studies. 86% (n=6) used a cross-sectional design with probabilistic sampling (57%, n= 4). The study design corresponds to secondary analyses of the surveys with general (29%, n=2) and student population (57%, n=4) ranging from 6 to 23 years of age. 43% (n=3) rely on informant reports provided by primary caregivers. Key characteristics of studies are displayed in Table 6.

(B.A. thesis, National Autonomous University of Mexico) (TESIUNAM) at 51.

⁵⁷ Jorge Ameth Villatoro Velázquez et al., *Percepción inseguridad social y su relación con el uso de drogas*, 14 REV. MEX. PSICOL. 105, 107-10 (1997).

⁵⁸ Karen K. Shelton et al., *Assessment of parenting practices in families of elementary school-age children*, 25 J. CLIN. CHILD PSYCHOL. 317, 318-24 (1996).

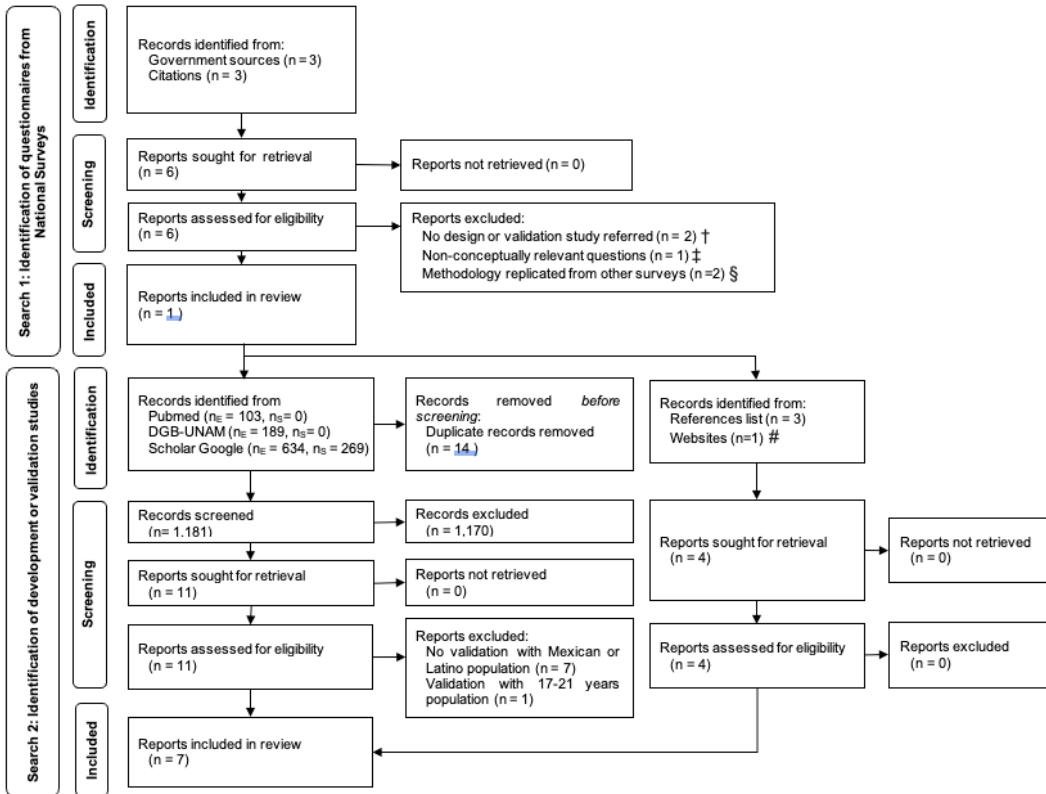
⁵⁹ Jorge Ameth Villatoro Velázquez et al., *La relación padres-hijos-una escala para evaluar el ambiente familiar de los adolescentes*, 20 SALUD MENTAL. 21, 23-6 (1997).

⁶⁰ Murray A. Straus et al., *Identification of Child Maltreatment With the Parent-Child Conflict Tactics Scales: Development and Psychometric Data for a National Sample of American Parents*, 22 CHILD ABUSE NEGL. 249, 253-59 (1998).

⁶¹ Claudia Teresita Ruiz-Cárdenas et al., *Validez de constructo de escala ambiente familiar para adolescentes*, 20 VERTIENTES. 35, 37-40 (2017).

⁶² Nieves Quiroz del Valle et al., *La familia y el maltrato como factor de riesgo de conducta antisocial*, 30 SALUD MENTAL. 47, 50 (2007).

Figure 1. Flow diagram of the two-step search strategy according to PRISMA⁶³



† Includes Special report, Adolescents: Vulnerability and Violence⁶⁴ and the National Survey on Adolescents in the Criminal Justice System⁶⁵

‡ Includes the National Survey on the Dynamics of Household Relationships⁶⁶

§ Includes the National Survey of Drugs, Alcohol and Tobacco Consumption 2016-2017⁶⁷ and the Diagnosis of adolescents who commit serious crimes in Mexico⁶⁸

¶ Results with search terms in English are noted as n_E. and those with search terms in Spanish are noted as n_S

Refers to Data Analysis and Survey Unit of National Institute of Psychiatry records⁶⁹

⁶³ Matthew J. Page et al., *The PRISMA 2020 statement: an updated guideline for reporting systematic reviews*, 10 SYST. REV. 1, 2-6 (2021).

⁶⁴ NATIONAL HUMAN RIGHTS COMMISSION, INFORME ESPECIAL ADOLESCENTES: VULNERABILIDAD Y VIOLENCIA (2017). https://informe.cndh.org.mx/uploads/menu/30101/Informe_adolescentes.pdf

⁶⁵ NATIONAL INSTITUTE OF STATISTICS AND GEOGRAPHY, *supra* note 55.

⁶⁶ NATIONAL INSTITUTE OF STATISTICS AND GEOGRAPHY, ENCUESTA NACIONAL SOBRE LA DINÁMICA DE LAS RELACIONES EN LOS HOGARES (ENDIREH) (2016). <https://www.inegi.org.mx/programas/endireh/2016/>

⁶⁷ NATIONAL INSTITUTE OF PSYCHIATRY ET AL., ENCUESTA NACIONAL DE CONSUMO DE DROGAS, ALCOHOL Y TABACO 2016-2017 (ENCODAT 2016-2017) (Nov. 28, 2017). <https://www.gob.mx/salud%7Cconadic/acciones-y-programas/encuesta-nacional-de-consumo-de-drogas-alcohol-y-tabaco-encodat-2016-2017-136758>

⁶⁸ AZAOLA, *supra* note 55.

⁶⁹ Unidad de Encuestas y Análisis de Datos, *Introducción*, <http://www.uade.inpsiquiatria.edu.mx> (last visited June 21, 2023).

Table 5. Characteristics of the outcome measurement instruments included in the searches

Instrument	Author(s) (year of publication)	Construct	Mode of administration†	Number of scales (number of total items); Range of score	(Sub)scale(s) (number of items)	Response options	Language
Alabama Parenting Questionnaire (APQ)	Frick (1991)	Parenting practices related to externalizing behaviors in children	Self-report and Interview (Child and Parent)	5 (42); 42-168	Involvement (10), positive parenting (6), poor monitoring/supervision (10), inconsistent discipline (6), corporal punishment (3), and other discipline practices (7)	4-point frequency scale (1-4: never, sometimes, often, and always)	English. <i>Transl.</i> Spanish
Family Environment Scale	Villatoro et al. (1997)	Family environment: communication, support and cohesion	Self-report	6 (42); 42-168	Hostility and rejection (11), parent communication (9), child communication (9), parent support (7), daily child support (6), and significant child support (6)	4-point frequency scale (1-4: hardly ever, sometimes, frequently, very frequently)	Spanish
Family Environment Scale – Short Form	Quiroz et al. (2007)	Family environment: communication, support, and cohesion	Self-report	5 (18); 18-72	Hostility and rejection (NR), parent communication (NR), child communication (NR), parent support (NR), and daily child support (NR)	4-point ordinal scale (1-4: hardly ever, sometimes, frequently, very frequently)	Spanish

Family Environment Scale for Adolescents (EAFSA)	Ruiz-Cárdenas et al. (2017)	Family environment: perception of family relationships regarding discipline, communication, problem solving, and affection	Self-report	5 (25); 25-100	Parent conflict (6), lack of family communication (5), lack of family habits and rules (6), hostility (5), and family acceptance (3)	4-point frequency scale (1-4: hardly ever, sometimes, frequently, almost always)	Spanish
Parent-Child Conflict Tactics Scale (CTSPC)	Straus et al. (1995)	Psychological and physical maltreatment, neglect, and nonviolent modes of discipline	Self-report and Interview (Child and Parent)	3 (22); 0-22+, depends on response category <i>Suppl.</i> =3(13)	Nonviolent discipline (4), psychological aggression (5), and physical assault: corporal punishment (5), physical maltreatment (4), severe physical maltreatment (4) <i>Suppl.</i> Weekly discipline (4), neglect (5), sexual maltreatment (4)	Overall 7 frequency categories: this has never happened, not in the past year, but it happened before, more than 20 times, 11-20 times, 6-10 times, 3-5 times, twice and once in the past year	English. <i>Transl.</i> Spanish
Social Insecurity Perception Scale	Villatoro et al. (1997)	Social risk: perception of neighborhood safety and danger	Self-report	3 (15); 15-60	Distant risk (9), social safety (3), and personal risk (3)	4-point ordinal scale (1-4: completely agree, disagree, completely disagree)	Spanish

Note. Instruments are displayed in alphabetical order. *Transl.* = Translation, *Suppl.* = Supplemental, and NR = Not reported.

† If administration is collected directly from the user, it is self-reported, but if a professional is required to interpret or complete the assessment, the information is obtained through an interview.

Table 6. Characteristics of development and validation studies found over the course of the research

Instrument	Author(s) (Year) [Reference]	Purpose of study	Study design (Sampling)	Study population		Age Mean \pm SD, Range years	City (Country)
				N	(% Male)		
Alabama Parenting Questionnaire (APQ)	Shelton et al. (1996)	To compare the assessment of parenting practices across informants and methods using several indices of reliability and validity.	Longitudinal (Non-probabilistic)	N=160 children and their caregivers, n=124 (M=81%) clinic-referred, n=36 (M=73%) volunteer		Clinic= 8.7 \pm 2.0, 6-13 years Volunteer= 9.1 \pm 2.4, 6-13 years	Alabama (USA)
Alabama Parenting Questionnaire (APQ)	Robert (2009)	To examine parenting practices in Mexico and assess the usefulness of the APQ with Mexican caregivers.	Cross-sectional (Probabilistic)	N=829 female primary caregivers (mothers: n=829, grandmothers: n=24, missing: n=9) and their children (n=862, M=48%)		Caregivers= 37.8 \pm 7.35, 19-79 years Children= 11.7 \pm 0.64, 10-15 years	Nuevo Leon (Mexico)
Family Environment Scale	Villatoro et al. (1997)	To present the validity and reliability of a scale aimed to evaluate the adolescent's perception of their family environment.	Cross-sectional (Probabilistic)	N=793 students (M=46.8%)		15.3 \pm NR, 11-22 years	Mexico City (Mexico)

Family Environment Scale – Short Form	Quiroz et al. (2007)	To determine the relationship between past experiences of mistreatment or inadequate familiar environment and the presence of antisocial behavior in adolescents.	Cross-sectional (Probabilistic)	N=3,603 (M=NR)	students	7 th to 12 th grade	Mexico City (Mexico)
Family Environment Scale for Adolescents (EFA)	Ruiz-Cárdenas et al. (2017)	To obtain the construct validity of the Family Environment Scale for Adolescents.	Cross-sectional (Non-Probabilistic)	N=391 (M=48.8%)	students	14 ± 0.56, 14-16 years	Mexico City (Mexico)
Parent-Child Conflict Tactics Scale (CTSPC)	Straus et al. (1998)	To create a parent-to-child version of the Conflict Tactics Scale.	Cross-sectional (Probabilistic)	N= 1,000 (M=51%)	parents and their children (n=1,000)	Parents = 36.8 ± NR Children = 8.4 ± NR, <18 years	USA (USA)
Social Insecurity Perception Scale	Villatoro et al. (1997)	To obtain validity and reliability of a measure of social insecurity and its relation to drug abuse in Mexican adolescents.	Cross-sectional (Non-probabilistic)	N= 795 (M=46.8%)	students	15.3 ± NR, 11-23 years	Mexico City (Mexico)

Note: Instruments are displayed in alphabetical order. N = total sample size, n = subgroups, μ = mean, SD = standard deviation, M = male, NR = not reported and USA = United States of America.

2. Measurement Properties of the Instruments Selected

A. Evaluation of Development

Most of the scales (n=4) described a clear construct with a defined conceptual framework and context of use, especially with evaluation and epidemiological research applications. The scales are grounded on developmental theories of disruptive and antisocial behavior,⁷⁰ and sociological theories.⁷¹ To note, the *APQ* does not provide a clear construct definition, while the *Social Insecurity Perception Scale* and the *FES* only include a general description of population with non-detailed or unspecified characteristics (e.g., *parent, child, adolescent*). These criteria give a rating of *insufficient*.

In terms of concept elicitation, all reported using methodology based on a literature review and previous versions of instruments but did not give detailed information on the methodology and subsequent analyses. Therefore, a *doubtful* rating was assigned in such cases. The *EAFa* and the *FES-Short Form* consider factorial analysis for identifying relevant items. Quiroz et al.⁷² state that the *FES-Short Form* is the result of subsequent analysis of the *FES*, possibly a factor analysis, but no additional information is provided. Lastly, only the *APQ* and the *CTSPC* conducted a pilot study with an adequate sample size (n≥7) of parents for improved clarity, but the particulars of the procedure are not presented.

In summary, the content validity rating was *insufficient* for the *FES*, the *EAFa*, and the *Social Insecurity Perception Scale* due to *inconsistent* relevance and unassessed comprehensiveness and comprehensibility. As stated above, general design characteristics are not specified and no justification for either the selected response category or the recall period is provided. Similarly, the *APQ* relevance was *insufficient* while comprehensibility was *sufficient*. The *CTSPC* relevance was *sufficient*, but comprehensibility could not be rated as the only available validation was found in the English version. Comprehensiveness was unassessed on any scale. A detailed evaluation for content validity is described in Table 7.

⁷⁰ This includes scales of Shelton et al., *supra* note 58, Villatoro et al., *supra* note 59, and Quiroz et al., *supra* note 62.

⁷¹ This includes scales of Villatoro et al., *supra* note 57 and Straus et al., *supra* note 60.

⁷² Quiroz et al., *supra* note 62.

Table 7. Content validity rating of potential instruments for pretrial risk assessment

Instrument or Acronym	Alabama Parenting Questionnaire	Family Environment Scale	Family Environment Scale for Adolescents	Parent-Child Conflict Tactics Scale – Parent Form	Social Insecurity Perception
Type of Study	DS (Shelton et al., 1996) CV (Robert, 2009) Authors	DS (Villatoro et al., 1997) Authors	DS (Ruiz-Cárdenas et al., 2017) Authors	DS (Straus et al., 1998) Authors	DS (Villatoro et al., 1997) Authors
Criteria	<i>Relevance †</i>				
1	-	+	+	+	+
2	-	+	+	+	+
3	+	+	+	+	+
4	+	+	+	+	+
5	?	?	?	?	?
<i>Rating</i>	±	±	±	±	±
<i>Overall Rating</i>	-	±	±	+	±

		<i>Comprehensiveness †‡</i>								
6	Are all key concepts included?	-	-	+	-	+	+	-	+	+
	<i>Rating</i>	-	-	+	-	+	-	-	+	+
	<i>Overall Rating</i>	-	-	-	-	-	-	-	-	-
		<i>Comprehensibility †‡</i>								
7	Does the population of interest understand the instructions as intended?	?	?	NA	-	NA	-	NA	?	NA
8	Does the population of interest understand the items and response options as intended?	?	?	NA	-	NA	-	NA	?	NA
9	Are the items appropriately worded?	NA	NA	+	NA	+	NA	+	NA	+
10	Do the response options match the question?	NA	NA	+	NA	+	NA	+	NA	+
	<i>Rating</i>	?	?	+	-	+	-	+	?	+
	<i>Overall Rating §</i>	+	+	-	-	-	-	-	-	-
	<i>Content Validity Rating §</i>	±	±	-	-	-	-	-	±	-

Note. Instruments are displayed in alphabetical order. The rating was determined using COSMIN criteria for good content validity.⁷³ The abbreviations used are DS: Development study and CV: Content validity study.

† Rating assigned by authors, taking into account construct, population, and context of use for pretrial risk assessment

‡ The rating system is +: Sufficient, -: Insufficient, ±: Indeterminate, ? : Inconsistent, ? : Indeterminate, and NA: Not applicable.

§ The rating system is +: Sufficient, -: Insufficient, and ±: Inconsistent.

⁷³ Terwee et al. *supra* note 32.

B. Evaluation of Validity

This domain includes *content* (n=1), *construct* (n=6) and *criterion validity* (n=1). *Content validity* was assessed from the comprehensibility of the items by an adequate sample size of mothers and children,⁷⁴ but the quality was *doubtful* due to the poor description of the procedure. For the *Social Insecurity Perception Scale*, a dissertation⁷⁵ described a comprehensibility assessment for a 9-item scale, but the procedure was not clearly described. This particular paper was not included as it was not a study on measurement properties.

Regarding *construct validity*, 1) Cross-cultural validity was not reported, not even for the Spanish versions of the *APQ* and the *CTSPC*. Robert⁷⁶ reported back-translation and pilot test for relevance and clarity issues of the *APQ-Parent Form*, but cultural equivalence was not examined. Its factorial structure was compared with the English version⁷⁷ and, as a result, differences were found when sorting the corresponding items in each factor. A previous study⁷⁸ stated that the *APQ* validity and reliability were suitable, and some items of the *CTSPC* were adapted from the Spanish version,⁷⁹ but the methodology and results are not described. Good internal consistency is only reported for the *CTSPC* in a study with Mexican juveniles.⁸⁰ No justification is reported for an item reduction in Spanish versions: *APQ*-33 items,⁸¹ *APQ*-18 items,⁸² *CTSPC*-51 items⁸³ and *CTSPC* -61 items.⁸⁴

2) Structural validity (n=4) was examined through exploratory (n=2) and confirmatory (n=2) factor analyses with a sufficient sample size, except for the *EAFE* which obtained an *insufficient* rating. The *APQ85* conducted confirmatory factor analyses, which reported theoretical inconsistency between parental

⁷⁴ CHRISTINA JANE ROBERT, PARENTING PRACTICES AND CHILD BEHAVIOR IN MEXICO: A VALIDATION STUDY OF THE ALABAMA PARENTING QUESTIONNAIRE (April 2009) (Ph.D. dissertation, University of Minnesota) at 44-5. https://conservancy.umn.edu/bitstream/handle/11299/51024/1/Robert_umn_0130E_10269.pdf

⁷⁵ Francisco Lorenzo Juárez, *Influencias Psicosociales sobre la Conducta Antisocial en Estudiantes de Nivel Medio Superior del DF y EDOMEX* (2009) (Ph.D. dissertation, National Autonomous University of Mexico) (TESIUNAM) at 76, 78, 83.

⁷⁶ ROBERT, *supra* note 74.

⁷⁷ Shelton et al., *supra* note 58.

⁷⁸ JORGE AMETH VILLATORO VELÁZQUEZ ET AL., ¿CÓMO EDUCAMOS A NUESTRO/AS HIJOS? ENCUESTA MALTRATO INFANTIL Y FACTORES ASOCIADOS 2006 44 (2006). http://cedoc.inmujeres.gob.mx/documentos_download/100769.pdf

⁷⁹ Miguel Ángel Caballero et al., *Violencia familiar en adolescentes y su relación con el intento de suicidio y sintomatología depresiva*, 18 *PSIQUIATRÍA*, 131, 133 (2002).

⁸⁰ *Id.*

⁸¹ VILLATORO ET AL., *supra* note 78.

⁸² NATIONAL INSTITUTE OF PSYCHIATRY ET AL., *supra* note 54.

⁸³ VILLATORO ET AL., *supra* note 78.

⁸⁴ NATIONAL INSTITUTE OF PSYCHIATRY ET AL., *supra* note 54.

⁸⁵ ROBERT, *supra* note 74 at 71-5.

involvement, positive parenting, and poor monitoring/supervision factors. A confirmatory analysis was conducted for the *FES* to solve conceptual inconsistencies of the parent communication factor, validating a two-factor model and adding a new factor on *significant child support*.⁸⁶ For the *Social Insecurity Perception Scale*, a *doubtful* rating was assigned because of sampling bias; most participants were classified at a moderate risk level. For the other scales, indetermination was attributed to unspecified fit indices.

3) Hypotheses-testing was assessed through the direct association between negative parenting (*APQ* and *FES – Short Form*) with the *Child Behavior Checklist (CBCL)*⁸⁷ and the *Antisocial Behavior Scale*,⁸⁸ and criminogenic settings (*Social Insecurity Perception Scale*) with the *High School Drug Use Questionnaire*.⁸⁹ Besides, discrimination between groups were evaluated by gender and antisocial behavior (*FES – Short Form*), as were disruptive behavior diagnoses (*APQ*). Most of the results support the author's hypotheses, but some (n=2) were *indeterminate* due to vague interpretation. Therefore, problematic scales due to inconsistency were positive parenting (*APQ*), parent and daily child support (*FES – Short Form*), and social safety (*Social Insecurity Perception Scale*). Indicators of *doubtful* quality were related to the inclusion of scales with *inadequate* internal consistency ($\alpha < .70$), undescribed fit indices for regression models, unequal group sizes, and unspecified description of subgroups. *Inadequate* quality was due to a lack of description of the measurement properties of the comparator. Finally, *criterion validity* was only reported for the *FES*. As a result of the analysis, a short form was obtained with suitable correlation values for original subscales.⁹⁰

C. Evaluation of Reliability

This domain comprises internal consistency (n=6) and test-retest reliability (n=1). Most of the scales (n=4) had a good methodological quality, so a *doubtful* rating relates to the sampling bias described earlier. An *indeterminate* rating is attributed to a prior determination of structural validity. According to Cronbach's alpha values, *inadequate* scales are positive parenting ($\alpha = .545$), poor monitoring/supervision ($\alpha = .623$), inconsistent discipline ($\alpha = .557$) and corporal punishment ($\alpha = .408$) (*APQ*), similar to the English version.⁹¹ Also, social safety ($\alpha = .688$) and personal risk ($\alpha = .613$) (*Social Insecurity Perception Scale*), as well as the *FES*-daily child support ($\alpha = .680$), the *EAFa*-hostility ($\alpha = .681$) and the

⁸⁶ Villatoro et al., *supra* note 59 at 24.

⁸⁷ THOMAS M. ACHENBACH, *MANUAL FOR THE CHILD BEHAVIOR CHECKLIST / 4-18 AND 1991 PROFILE* (1991).

⁸⁸ Francisco Juárez et al., *Antisocial behavior: Its relation to selected sociodemographic variables and alcohol and drug use among Mexican students*, 7 *SUBST. USE MISUSE*, 1437, 1439-40 (1998).

⁸⁹ María Elena Medina-Mora et al., *Validity and reliability of a high school drug use questionnaire among Mexican students*, 33 *BULL NARC*, 67, 68-75 (1981).

⁹⁰ Quiroz et al., *supra* note 62.

⁹¹ Shelton et al., *supra* note 58.

CTSPC–neglect ($\alpha=.220$). Test-retest reliability was only reported for the *APQ* using a wide range time interval across interviews (“at least three days apart in a two-to-four-week period”) which also implies a possible training bias due to repeated administration over a short-time period. In this case, it was assigned a *doubtful* quality and as it was estimated with coefficient alpha, the rating was *indeterminate*.

3. Quality of Evidence of the Instruments

All development studies obtained *very low* quality scores attributable to a *very serious* risk of bias because it only takes into account one poor quality study and no content validity study. The quality for the CTSPC also decreased due to *serious* inconsistency and *serious* indirectness in the results as it includes a different population and administration format. As to the *APQ*, although it considers a *doubtful* content validity study for the parent form, it also included a different population, making the results largely *inconsistent*. In the validation studies, *low* quality (n=8) is related to *very serious* indirectness and a *very serious* risk of bias for it due to inclusion of a *doubtful* study; and *very low* quality (n=3) is explained by *very serious* indirectness and a *very serious* to *extremely serious* risk of bias in examining *doubtful* and *inadequate* studies. Table 8 describes the quality of evidence per measurement property.

Table 8. Methodological quality and measurement properties of potential instruments for pretrial risk assessment

Instrument or Acronym [Reference]	Instrument Development	Content Validity	Structural Validity	Internal Consistency	Test-retest reliability	Criterion Validity	Hypotheses Testing
Alabama Parenting Questionnaire (APQ) [†] (Shelton et al., 1996)	Design-MQ: I Pilot-MQ: D Total: I Q: Very Low	NR	NR	MQ: V R: - Q: High	MQ: D R: ? Q: Low	NR	<i>Discriminative</i> (DBD) MQ: D R: + Q: Low
Alabama Parenting Questionnaire (APQ) – Parent Form (Robert, 2009)	NA	MQ: D Q: Very Low	MQ: V R: ? Q: Low	MQ: V R: - Q: Low	NR	NR	<i>Convergent</i> (CBCL) MQ: D R: + Q: Very Low
Family Environment Scale (Villatoro et al., 1997)	Design-MQ: I Pilot-MQ: I Total: I Q: Very Low	NR	MQ: V R: + Q: High	MQ: V R: - Q: High	NR	NR	NR
Family Environment Scale – Short Form (Quiroz et al., 2007)	NR	NR	NR	NR	NR	MQ: V R: + Q: High	<i>Convergent</i> (AB Scale) MQ: D R: ? <i>Discriminative</i> (Gender and AB) MQ: D R: + Q: Low

Family Environment Scale for Adolescents (EAFSA) (Ruiz-Cárdenas et al., 2017)	Design-MQ: D Pilot-MQ: I Total: I Q: Very Low	NR	MQ: I R: - Q: Very Low	MQ: V R: - Q: High	NR	NR	NR
Parent-Child Conflict Tactics Scale (CTSPC) – Parent Form (Straus et al., 1998)	Design-MQ: D Pilot-MQ: D Total: D Q: Very Low	NR	NR	MQ: V R: ? Q: Low	NR	NR	NR
Social Insecurity Perception Scale (Villatoro et al., 1997)	Design-MQ: I Pilot-MQ: I Total: I Q: Very Low	NR	MQ: D R: ? Q: Low	MQ: D R: - Q: Low	NR	NR	<i>Convergent (HSDUQ)</i> MQ: I R: ? Q: Very Low

Note. Instruments are displayed in alphabetical order. Methodological quality (MQ) was determined using COSMIN Risk of Bias checklist,⁹² while property measures rating (R) was based on criteria for good measurement properties.⁹³ The abbreviations used are V: Very good, A: Adequate, D: Doubtful, I: Inadequate, +: Sufficient, -: Insufficient, ?: Indeterminate, NR: Not reported, Q: Quality of evidence, DBD: Disruptive behavior diagnosis, CBCL: Child Behavior Checklist, AB: Antisocial Behavior, HSDUQ: High School Drug Use Questionnaire.

† Only the *child report* subscale was considered for measurement properties evaluation.

⁹² Mokkink, de Vet et al., *supra* note 32. Also Mokkink, Boers et al., *supra* note 32.

⁹³ Prinsen, et al., *supra* note 50.

V. Discussion

The main objective of this review was the evaluation of the measurement properties of relevant pretrial RAI for Mexican juvenile offenders. Nevertheless, no development or validation studies were found. This is probably because of the lack of publication practices within the Criminal Justice System. Although some tools have been designed (e.g., UMECA of the State of Morelos), there is no available data, thus making it difficult to examine them.

Nonetheless, there is an enormous number of outcome measurement instruments which can be adapted to forensic settings. For instance, scales designed for epidemiological studies, like those included in the review, are compatible with community ties and family collateral factors in pretrial RAI.⁹⁴ These scales are appropriate for the Juvenile Justice System because of their criminological and sociological framework of antisocial behavior; a comprehensive construct that encompasses substance use and criminal behavior.⁹⁵

An unexpected finding was discovered in development studies. Most included an ambiguous description of the design, while others had none. The *EAFI* and the CTSPC were the only ones that clearly established the main characteristics and only the latter specified response options and a recall period. A pilot test for a developed outcome measurement instrument is not a frequent procedure and if conducted, it generally only gauges comprehensibility. Regarding content validity, one of the most important measurement properties,⁹⁶ was only reported for the *APQ*. According to Prinsen,^{97 98} instruments with poor content validity should not be selected, but when a *very low*-quality level estimation is not reliable, other properties like internal consistency must be examined. This last property obtained the highest methodological and quality level of evidence, which means it is one of the most reliable estimations, followed by structural and criterion validity.

From validation, the *FES* obtained the highest quality. Meanwhile, more measurement properties were examined in the *APQ* and the *Social Insecurity Perception Scale*, but these had *low*-quality levels reflecting substantial differences from a true estimation. The *APQ* was the only one with two studies published. No validation studies were found for the CTSPC.

After the analyses with COSMIN, the selection of instruments for forensic application should be determined by the level of evidence, highlighting the sci-

⁹⁴ AGUILAR & CARRASCO, *supra* note 17. *Also* THE JUSTICE STUDIES CENTER OF THE AMERICAS, *supra* note 17. *Also* STEINHART, *supra* note 17.

⁹⁵ ALAN E. KAZDIN & GUALBERTO BUELA-CASAL, CONDUCTA ANTISOCIAL. EVALUACIÓN TRATAMIENTO Y PREVENCIÓN EN LA INEANCIA Y ADOLESCENCIA 19-20 (1998). *Also* Rolf Loeber & Karen B. Schmalzing, *Empirical evidence for overt and covert patterns of antisocial conduct problems: A metaanalysis*, 13 J. ABNORM. CHILD. PSYCHOL. 337, 346-48 (1985).

⁹⁶ Prinsen et al., *supra* note 50 at 5-6.

⁹⁷ *Id.* *Also* Prinsen et al., *supra* note 31 at 1151.

⁹⁸ Prinsen et al., *supra* note 50 at 6.

entific evidence obtained from expert-consensus-standardized methodology as established by the Daubert Standard.⁹⁹ This implies selecting the *FES* among parent-child relationship scales, as well as the CTSPC and the *Social Insecurity Perception Scale*, for evaluating a different domain of family environment and community settings. However, it could be worthwhile to select subscales with *adequate* methodological quality and *sufficient* measurement properties that are also supported by evidence of predictors of pretrial misconduct or antisocial behavior. For instance, some studies have reported that positive parenting practices¹⁰⁰ like involvement and supervision, mainly through adolescent disclosure,¹⁰¹ are significant predictors. Therefore, the authors encourage adapting involvement from the *APQ*, lack of family communication from the *EAFa* and parent support and child communication from the shorter form of *FES*. As to the others, the CTSPC in its entirety and distant and personal risk from the *Social Insecurity Perception Scale* are recommended to provide information about safety in the family environment and additional characteristics of the neighborhood. In any case, it is necessary to revise the items, response scales, and recall period to ensure relevance, comprehensiveness, and comprehensibility, mainly because the transcultural adaptation of the Spanish versions of the *APQ* and the CTSPC is unknown.

These subscales could improve the evaluation of contextual factors with the lowest number of items possible since pretrial RAI should be brief to be used as a screening device and easier to fill out,¹⁰² while also adhering to the law.¹⁰³ In the Mexican Comprehensive Criminal Justice System for Adolescents, information about collateral factors, like mitigating factors, must be considered a benefit¹⁰⁴ to ensure that judicial decisions comply with the principles of pre-

⁹⁹ CONOCIMIENTOS CIENTÍFICOS CARACTERÍSTICAS QUE DEBEN TENER PARA QUE PUEDAN SER TOMADOS EN CUENTA POR EL JUZGADOR AL MOMENTO DE EMITIR SU FALLO, Primera Sala de la Suprema Corte de Justicia [S.C.J.N.] [Supreme Court], *Semanario Judicial de la Federación y su Gaceta*, Novena Época, Tomo XXV, March 2007, Tesis CLXXXVII/2006, page 258 (Mex.).

¹⁰⁰ Olalla Cutrín, José Antonio Gómez-Fraguela et al., *Effects of parenting practices through deviant peer on nonviolent and violent antisocial behaviours in middle-and late-adolescence*, 9 EUR. J. PSYCHOL. APPL. LEG. CONTEXT. 75, 77-9 (2017). Also Olalla Cutrín, Lorena Maneiro et al., *Longitudinal effects of parenting mediated by deviant peers on nonviolent and violent antisocial behaviours and substance use in adolescence*, 11 EUR. J. PSYCHOL. APPL. LEG. CONTEXT. 23, 26-9 (2019). Also Dongdong Li et al., *Risk and Protective Factors for Probation Success Among Youth Offenders in Singapore*, 17 YOUTH VIOLENCE JUV. JUSTICE. 194, 201-204 (2019).

¹⁰¹ Cutrín, Maneiro et al., *supra* note 100.

¹⁰² STEINHART, *supra* note 7 at 29.

¹⁰³ Ley Nacional del Sistema Integral de Justicia Penal para Adolescentes [L.N.S.I.J.P.A.] [Law of the Comprehensive Criminal Justice System for Adolescents], as amended, *Diario Oficial de la Federación* [D.O.F.], December 20, 2022. Title II Medidas Cautelares.

¹⁰⁴ Ley Nacional del Sistema Integral de Justicia Penal para Adolescentes [L.N.S.I.J.P.A.] [Law of the Comprehensive Criminal Justice System for Adolescents], as amended, *Diario Oficial de la Federación* [D.O.F.], December 20, 2022. Arts. 12, 27

cautionary measures¹⁰⁵ and protect the best interests of the child throughout the criminal process. This is why mental health status cannot be considered an aggravating factor, but an opportunity to detect mental health needs from a public health perspective.¹⁰⁶

Studies with juvenile offenders¹⁰⁷ report mental health problems such as disorders due to substance use and disruptive behavior which may increase as the criminal case progresses; it is more likely that this will meet the criteria in the latter stages than at the onset.¹⁰⁸ This highlights the relevance of the Juvenile Justice System's prompt detection of needs to guarantee the protection of the right to enjoy the highest attainable standard of health.^{109 110} In the end, the point of pretrial risk assessment is to balance individual rights with the need for caution, and to accomplish this, validated tools are essential.

In the future, it will be fundamental to consider some challenges in their implementation so as to enhance the effectiveness of these instruments. First, before testing, justice system operators could be invited to take part in the development process to record suggestions and obtain their approval.¹¹¹ This would improve instrument feasibility and promote a multidisciplinary approach. Second, for validation purposes, the sample must represent the referral population by having similar characteristics (e.g., sex, age, scholasticity, etc.), with different charge types and risk levels.¹¹² If statistical analysis is adjusted to these conditions and results are monitored, they could diminish potential bias in judicial decisions when establishing conditions and detention lengths. Last, it may be appropriate to implement structured guidelines for judicial operators regarding scope and limitations in practice, so as to standardize judicial discretion when possible and increase awareness of possible biased outcomes as a result of discretion.¹¹³ To sum up, pretrial risk assessment could be a double-edged sword

¹⁰⁵ Committee on the Rights of the Child, General Comment No 24 (2019) on Children's rights in juvenile justice, ¶ 85, 87, U.N. Doc. CRC/C/GC/24 (Sept. 18, 2019). Also G.A. Res. 44/25, § 40 U.N. Doc. A/RES/44/25 (Nov. 20, 1989). Also G.A. Res. 45/113, ¶ 17, 18 U.N. Doc. A/RES/45/113 (Dec. 14, 1990).

¹⁰⁶ Nora D. Volkow et al., *Drug use disorders: Impact of a public health rather than a criminal justice approach*, 16 *WORLD PSYCHIATRY*, 213, 213-214 (2017).

¹⁰⁷ Rohan Borschmann et al., *The health of adolescents in detention: A global scoping review*, 5 *THE LANCET PUBLIC HEALTH*, e114, e116-20 (2020). Also MANFRED NOWAK, *THE UNITED NATIONS GLOBAL STUDY ON CHILDREN DEPRIVED OF LIBERTY* 130-136 (United Nations) (2019).

¹⁰⁸ Gail A. Wasserman et al., *Psychiatric disorder comorbidity and suicidal behavior in juvenile justice youth*, 37 *IACFP*, 1361, 1365-1368 (2010).

¹⁰⁹ Committee on the Rights of the Child, General Comment No 24 (2019) on Children's rights in juvenile justice, ¶ 82, U.N. Doc. CRC/C/GC/24 (Sept. 18, 2019).

¹¹⁰ G.A. Res. 44/25, § 24 U.N. Doc. A/RES/44/25 (Nov. 20, 1989).

¹¹¹ GARCÍA & CARRASCO, *supra* note 2 at 109. Also STEINHART, *supra* note 7 at 50.

¹¹² Jennifer E. Copp & William M. Casey, *Pretrial risk assessment instruments in practice: The role of judicial discretion in pretrial reform*, 21 *CRIMINOL. PUBLIC POLICY*, 329, 342-344 (2022). Also Sarah L. Desmarais et al., *The empirical case for pretrial risk assessment instruments*, 6 *CRIM. JUSTICE BEHAV.* 807, 808-809, 811 (2022).

¹¹³ Copp & Casey, *supra* note 112 at 348, 349.

if not supported by data and reliable methodology, but especially if it does not adhere to decision-making guidelines.¹¹⁴

As to the limitations of this study, despite following a well-established protocol, search results were restricted because of database scope and publishing practices about measurement properties. First, the instruments assessed were selected from national surveys, so it is possible that several instruments with a smaller sample size were excluded. Second, the selection of studies was initially made based on the title and the abstract, but it was found that it is common practice to report a development and validation study without it being clearly stated in these sections. Authors recommend searching by domains (e.g., attachment, delinquency behavior) or particular variables to broaden the scope of results for Mexican and Latino populations. This strategy should include a manual search in government databases and institutional repositories that are not included in this review.

VI. Conclusions

This is the first systematic review conducted to identify pretrial RAI for Mexican juvenile offenders, using well-documented criteria like COSMIN. However, no pretrial RAI were found. Authors proposed five self-report instruments that were selected from surveys for evaluating parenting practices and social context. No validated tools were found for delinquent behavior and most variables of community ties, such as residential, employment and school stability. Last, because of the quality level of evidence, the selection of subscales was simply laying the groundwork. More research is needed on the validity and reliability of instruments in order to reach a more solid conclusion.

This review highlights the urgent need for the Mexican Comprehensive Criminal Justice System for Adolescents to use proven and reliable tools that have an impact on detention decisions without infringing on legal principles. Future research should be directed at developing and validating pretrial evidence-based tools with a risk-need approach to encourage the implementation of precautionary measures suited to the Mexican context, the best interests of the child, and legal standards.

VII. Conflict of Interest Statement

The Authors declare that there is no conflict of interest.

¹¹⁴ Evan M. Lowder et al., *Effects of pretrial risk assessments on release decisions and misconduct outcomes relative to practice as usual*, 73 J. CRIM. JUSTICE. 1, 8-10 (2021).

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