



Examining family-preschool partnership: A literature review of the existing measures and their psychometric properties

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ABSTRACT: Family-preschool partnership is recognised as an important relationship between parents and teachers contributing to preschool child outcomes which has received increasing attention the last decades. This has led to the development of several tools measuring different aspects of family-preschool partnership. A synthesis of the information according to the psychometric properties of these measures is lacking and would inform researchers in choosing measures when evaluating family-preschool partnerships. The main purpose of this article was therefore to find instruments aiming to assess family-preschool partnership that have been tested for their psychometric properties and to review these properties based on the frequency with which researchers have tested them. Four electronic databases were searched using the key words: family-preschool partnership, parental engagement, family involvement, parent involvement, parent-teacher relationship combined with scale, measure, measuring, assessment, evaluation, psychometric, test. Fifteen tools assessing family-preschool partnership were identified, of which only seven had been tested more than once for their psychometric properties. The majority of the existing

measures require extra validation work. Taking into consideration the interest in this relationship and its effects on preschool child development, it seems important for the field to promote the use of validated and well-established measures.

Keywords: *Family-preschool partnership, literature review, tool, psychometric properties*

Introduction

In early childhood education, the family-preschool partnership plays a vital role in supporting children. The two most influential contexts where preschool children's cognitive and socio-emotional development occur are family and preschool (Galindo & Sheldon, 2012). For preschool children, the coordination between home and preschool is important in order to promote children's development and learning (Lang et al., 2016). An initial review of the literature revealed the importance of family-preschool partnership for children (Allen, 2007; Wood et al., 2021). People's (e.g., parents, legal guardians, primary caregivers, preschool teachers) interactions across these contexts are important for preschool children's socio-emotional development and academic achievement (Cohen & Anders, 2020). It is important for both of them to share positive interactions, which in turn support family-preschool partnerships, otherwise it is challenging to build valuable collaboration (National Association of School Psychologists [NASP], 2019).

Parents and preschool teachers must assess their relationship in order to build a strong family-preschool partnership (NASP, 2019). Many measures have been developed to evaluate the parents' and teachers' perceptions of their partnership. Knowing the psychometric properties of these measures and the frequency with which these properties have been tested, researchers would know which instruments have completed psychometric evidence, and how often it is chosen to be used by others. Consequently, such a review would help inform researchers in their choice of measures when assessing family-preschool partnership and help move the field towards the adoption of well-established and validated tools. However, a synthesis of the information regarding the psychometric properties of these different measures and the frequency of testing them is lacking. This research aims to identify instruments aiming to assess family-preschool partnership that have been tested for their psychometric properties and to review these properties based on the frequency with which researchers have tested them.

What is the family-preschool partnership about?

Family-preschool partnership is the relationship of trust, respect, two-way communication, empowerment between parents and teachers who are equal and decide

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together (Chan & Ritchie, 2016). Parental engagement is used to describe the partnership and interaction between parents and teachers with the main goal of strengthening children's development (Barker & Harris, 2020; Kurucz et al., 2020). A focus of partnerships is on establishing intentional coordination, consistency, and continuity across home and preschool context. These conditions are accomplished through activities of family involvement, such as joint problem-solving, two-way communication, and shared decision-making. Family-preschool partnership, parental engagement, and family involvement are few of the terms that are used interchangeably to describe a concept of how, and to what degree, parents support their children's academic, social-emotional learning, as well as how families interact with schools to maximise children's school and life success (Patrikakou, 2016). In the current study these three concepts (family-preschool partnership, family involvement, parental engagement) are understood as any family-preschool relationship that aims to maximise preschool children's development. Moreover, the term family-preschool partnership is used in this study as an umbrella term which encompasses the other two terms (family involvement and parental engagement).

Why is it important to have measures to evaluate family-preschool partnership?

Measurement plays a valuable role in social science research. Social measurement contributes to an accurate scientific understanding of the social world (Tucker, 2010). Measures that assess the partnership between families and schools are useful and valuable as family-preschool partnership requires ongoing development, implementation and evaluation. When parents and preschool teachers take time to evaluate their relationship, then the teachers are more likely to improve the overall quality of their partnership (NASP, 2019). The impact of the quality of the partnerships of adults across family and school on children's learning experiences is undisputed (Sheridan et al., 2019). Taking into consideration the impact of family-preschool partnership on preschool children's development it is important for parents and preschool teachers to evaluate their relationship. Measuring family-preschool partnership can provide valuable information about how teachers are progressing in areas such as communicating with parents, responding to parental needs, including decision-making about their preschool children, showing respect and trust toward (Petrogiannis & Penderi, 2013).

Widely recognised purposes of assessing family-preschool partnerships include: evaluating the quality of family-preschool partnerships; identifying significant concerns about family-preschool partnership and determining eligibility for programmes of parental engagement; informing family engagement planning; helping preschool teachers to use the outcomes in order to improve the quality of family-preschool partnership (e.g., Christenson, 2003; Summers et al., 2005).

According to Epstein and Sheldon (2019) evaluation plays an important role in family-school partnerships, as without it there is no way for teachers to know the challenges and the strengths of their relationships with parents. The use of measurement tools that may provide data across a wide range of participants, e.g., parents and teachers, contributes to further investigation of any problematic areas of their partnership. The knowledge of parents' perceptions about their collaboration would help preschool teachers to further investigate the areas that need improvement. The sooner they identify challenges in the partnership, the more preschool children would benefit. The increasing research interest in family-preschool partnership has led to the development of numerous measures assessing this connection. A variety of measures have been included in literature reviews focused on family-school partnership (Porter et al., 2012; Westmoreland et al., 2009).

Limitations in inspecting the measures: Necessity for examining the psychometric properties

Psychometric properties are the most important and fundamental features in the evaluation of any measurement (Ohiri et al., 2024). Reliability and validity are considered the main measurement properties (Souza et al., 2017). Reliability is the ability to reproduce a result consistently in time and space (Souza et al., 2017). Reliability can be assessed in a variety of ways including internal structure (i.e., Cronbach's alpha coefficients) and consistency in performance of the measure over time (test-retest reliability). According to Cicchetti (1994), internal consistency coefficients may be considered "fair", between .70 and .79, "good", between .80 and .89, and "excellent", from .90 upward, and a test-retest reliability coefficient can be considered "fair", between .40 and .59, "good", between .60 and .74, and "excellent", between .75 and 1.00.

Validity has to do with whether a measure of a concept really measures that concept (Bryman, 2012). There are several ways of establishing validity, such as 1) face validity (refers to whether the measure apparently reflects the content of the concept in question), 2) criterion validity or empirical validity for which there are two types (Ohiri et al., 2024) a) concurrent validity (indicates the amount of agreement between two different assessments) (Bryman, 2012), and b) predictive validity (indicates the ability of the measuring instrument to differentiate among individuals with reference to a future criterion), 3) structural validity (defined as the degree to which the scores of the measurement instrument are an adequate reflection of the dimensionality of the construct being measured) (De Vet et al., 2011), and 4) construct validity (refers to the extent to which the test measures a construct or trait, which it is supposed to measure) (Ohiri et al., 2024). The evidence of construct validity can be ascertained by obtaining a) convergent validity (how the items are associated with measures that assess the same construct or a related construct that we expect the measure to be associated with) (Kazdin, 2016), and b) discriminant validity (indicates the ability of the instrument to

have little or no relationship with scores from an instrument that measures a construct that is dissimilar to it) (Ohiri et al., 2024).

Only two studies report on several of the existing measures designed to assess family-school partnerships, but neither of them has attempted to provide an exhaustive overview of their psychometric properties and the frequency with which they have been tested. The Harvard Family Research Project (Westmoreland et al., 2009) developed a resource of instruments measuring family involvement to support stakeholders' knowledge on the topic. Porter et al. (2012) reviewed existing measures to delineate some of the gaps of the measures of family-school relationships. Specifically, they conducted an overview of methodological and conceptual issues of different measures in order to develop a new instrument of the quality of these relationships. They found significant gaps in the content of items related to the specific constructs and the elements posited in their conceptual model (attitudes, practices, knowledge, environmental features).

To date, therefore, a synthesis of the information regarding the psychometric properties of these different measures and the frequency of testing them is lacking. When researchers have access to psychometric properties of measures, such as reliability and validity, they can make informed decisions about which instruments have completed psychometric evidence (Cordier et al., 2017) and they can make conscious choices based on research evidence when choosing which instrument to use in their study. Moreover, the psychometric properties would be used by researchers in selecting measures and adapting them for teachers or education services to use. In addition, the frequency at which these properties have been tested can provide valuable information to researchers on how reliable and valid a measure is and how often it is chosen to be used by others. Consequently, such a review would help inform researchers in their choice of measures when assessing family-preschool partnership and help move the field towards the adoption of well-established and validated tools. The main goal of the present study was therefore to identify the instruments aiming to assess family-preschool partnership that have been tested for their psychometric properties and to review these properties based on the frequency with which researchers have tested them.

Purpose of the study

The main goal of the present paper is to identify the instruments aiming to assess family-preschool partnership that have been tested for their psychometric properties and to review these properties based on the frequency with which researchers have tested them. Specifically, the paper addresses the following questions:

Q1: Which instruments that aim to assess family-preschool partnership have been tested for their psychometric properties?

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Q2: How frequently the instruments have been tested for their psychometric properties?

Methods

Data-gathering

In this review, in a first step studies focusing on the assessment of family-preschool partnerships were identified by the first author. Existing measures were searched by using Google and the academic databases Scopus, Google Scholar, Semantic Scholar, and JSTOR from January to March 2022 and from January to May 2023. The following keywords were used in the search: *family-preschool partnership, parental engagement, family involvement, parent involvement, parent-teacher relationship* combined with *scale, measure, measuring, assessment, evaluation, psychometric, test*. The resulting studies (n = 51) were examined as a second step based on their title and abstract by the first author. During this step the duplicate articles (n = 17) were excluded. Reading the abstract of the remaining articles (n = 34), it was understood that some of the measures focused on other concepts of family involvement, such as home-based parent involvement. After the initial screening, as a third step the first author and the second author decided to remove 10 manuscripts that were not related with family-preschool partnership (see Figure 1). In a fourth step, the remaining manuscripts (n = 24) underwent a full text review. At the same time, authors of three papers for which access to the full version was not possible were contacted and asked to share the full version with the research team. During the fourth step, the research team decided to include in review only published manuscripts that were written in English and Greek, and were not preliminary measures in the development of other instruments. Following this direction, the first author randomly selected 10 articles of the 24 and created a draft table with the following information: name of the measure and author (s), manuscript's language, year of publication, and added comments on the table concerning which of the scales should be excluded and which should be included in the review. The second, third, and fourth authors then reviewed the same scales and agreed with the first author's comments. The first author continued the same process, reviewed the rest of the scales (n = 14), and added comments. The other three authors reviewed the table and agreed with the first author's decisions. Nine scales were excluded by the research team as they a) were not written in English or Greek (such as *Collaboration with school*, Paccaud et al., 2020), b) were unpublished instruments (e.g., *Self-assessment of parent engagement practices*, Sjuts & Sheridan, 2011), and c) were preliminary measures in the development of other instruments (such as *Parent Involvement in Children's Education Scale* that was a stepping stone to the creation of the Family Involvement Questionnaire, Fantuzzo et al., 2000). Finally, 15 articles were included in review (Table 1). These 15 articles that were peer-reviewed journal articles were inspected with respect to their psychometric properties.

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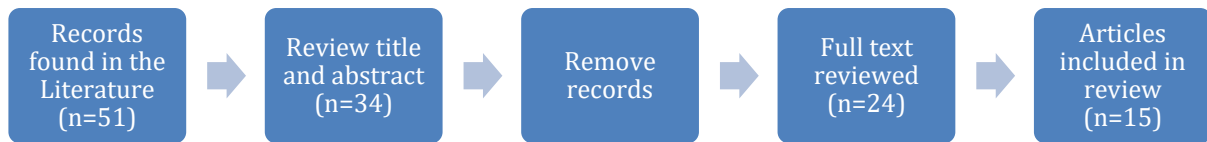


FIGURE 1 The literature review process

Results

Fifteen assessment tools evaluating family-preschool partnership were identified. Some of them have been translated and validated in numerous languages, such as Chinese, Greek, Turkish, and Spanish. These measures are presented in Table. The review includes tools evaluating one of the terms (family-preschool partnership, parent-preschool teacher relationship, family involvement, parental engagement) that are used interchangeably to describe family-preschool partnership. Among these measures, only seven had more than one study testing their psychometric properties, and eight had only one testing study. These most frequently tested measures with more than one study on their psychometric properties and the depth in which the psychometric properties were examined are detailed below and in Table 1 and arranged in descending order according to the amount of available empirical data. Specifically, we categorized the existing measures into two groups: measures that have been tested with more than one study on their psychometric properties and measures that have been tested for their psychometric properties only once by following the analytical example of categorisation of Laconi et al. (2014). Categorising measures based on the frequency of testing its psychometric properties can provide several benefits in research. More specifically, when measures are categorised based on how often its psychometric properties are tested, researchers can gain insights on how reliable and valid a measure is and how often it is chosen to be used by others. Moreover, this categorization informs researchers about which measures are likely to be more robust and trustworthy in measuring the construct of family-preschool partnership.

Psychometric properties such as the reliability and validity, and the children's grade, in the results section, as well as on Table 1 were reported. Moreover, on Table 1 information about the dimensions and the content of the reviewed measures were provided.

TABLE 1 Characteristics of the 15 measures assessing family-preschool partnership

	MEASURES	AUTHORS	DIMENSIONS	VALIDITY	RELIABILITY		
					Parents	Teachers	Child's grade
1	Family Involvement Questionnaire (FIQ) <i>Asks parents to indicate the nature and extent of their family involvement.</i>	Fantuzzo et al. (2000) USA	School-based involvement, Home-school conferencing	Construct validity	.81 to .85	-	Preschool up to 1 st grade programme
	FIQ-Greek Version	Manolitsis (2004) Greece	Same as FIQ	Construct validity	.80 to .86	-	Preschool
	FIQ-Short form	Fantuzzo et al. (2013) USA	Same as FIQ	Construct validity (convergent validity)	.87 to .91	-	Preschool
	FIQ-Short form	Bulotsky-Shearer et al. (2016) USA	Same as FIQ	Construct validity	.82 to .88	-	Preschool
	FIQ-Chinese Version	Xia et al. (2020) China	Same as FIQ	Structural and construct validity	.75 to .91	-	Preschool
2	Parent Satisfaction with Educational Experiences (PSEE) <i>Asks parents of children to indicate their level of satisfaction with their contact experiences of their children's early childhood education.</i>	Fantuzzo et al. (2006) USA	Teacher contact experiences, Classroom contact experiences, School contact experiences	Construct validity	.75 to .82	-	Preschool up to 1 st grade programme
	PSEE-Turkish Version	Ahmetoğlu & Acar (2017) Turkey	Teacher contact experience, School/class contact experiences	Construct validity	.81 to .82	-	Preschool
	PSEE-Chinese Version	Hong et al. (2019) China	Teacher contact experiences, Classroom contact experiences, School contact experiences	Construct validity	.93 to .96	-	Preschool

3	Parent-Teacher Involvement Questionnaire, Parent/Teacher Version (PTIQ-P/PTIQ-T) <i>Measures various facets of family-school partnerships based on parents' and teachers' perceptions.</i>	Miller-Johnson & Maumary-Gremaud (1995), Kohl et al. (2000), Corrigan (2002) USA	Parent-teacher contact, Parent involvement at school, Quality of parent-teacher relationship, Teacher's perception of parent, Parent endorsement of school	Construct validity	.67 to .89	.71 to .93	Preschool up to 1 st grade programme
	PTIQ-P/PTIQ-T	Mautone & Marcelle (2014) USA	Quality of Parent-Teacher Relationship for parents Quality of Parent-Teacher Relationship for teachers	Criterion validity (concurrent validity) and construct validity	.90	.81	Preschool
4	Parental Engagement of Families from Latino Backgrounds (PEFL-ENGLISH) <i>Measures parents' active participation in school-based activities.</i>	McWayne et al. (2013) USA	School participation	Construct validity	.77	-	Preschool
	PEFL-ENGLISH and SPANISH	McWayne & Melzi (2014) USA	School participation	Construct validity	.79	-	Head start programmes
5	Parent-Caregiver Relationship Scale (PCRS) <i>Measures parents' and caregivers' mutual perceptions of their relationship.</i>	Elicker et al. (1997) USA	Confidence, Collaboration, Affiliation, Caring	Criterion validity and construct validity	.91 to .75	.92 to .84	Preschool
	PCRS	Cantin et al. (2012) USA	Same as PCRS	Construct validity	.73 to .90	.79 to .94	Preschool
6	Family-Professional Partnership Scale (FPPS)-Family version <i>Asks parents' and professionals' perceptions about the importance of family-professional partnerships and their satisfaction of its.</i>	Summers et al. (2005) USA	Child-focused relationship, Family-focused relationships	Construct validity	.88 to .90	-	Preschool up to elementary school
	FPPS-Family version, and professional version	Kang et al. (2020) Taiwan	Child-focused relationship, Family-focused relationship, Trust-building relationship	Structural validity and construct validity	.99	.64 to .90	Preschool

7	Parent-Teacher Relationship Scale (PTRS) <i>Assesses parents' and teachers' perceptions about the quality of parent-teacher relationships.</i>	Vickers & Minke (1995) USA	Communication, Joining	Construct validity	.98 to .86	.98 to .85	Preschool up to middle school
	PTRS-II teacher version	Dawson & Wymbs (2016) USA	Same as PTRS	Construct validity	-	-	Preschool up to 6 th grade
	PTRS	Acar & Güldali (2017) Turkey	Same as PTRS	Construct validity	.87 to .93	.77 to .89	Preschool
8	Parent Survey <i>Assesses parents' perceptions about involvement.</i>	Patrikakou & Weisseberg (2000) USA	Perceived teacher outreach, Parent involvement at school	-	.71. to .87	-	Preschool up to 3 rd grade
9	Parent And School Survey (PASS) <i>Measures parental involvement in the children's education.</i>	Ringenberg et al (2005) -	Communicating, Volunteering, Decision-making, Collaborating w/community	-	-	-	Preschool up to elementary school
	PASS	White et al. (2019) USA	Involvement with school and community	Criterion validity and construct validity	.44 to .71	-	Elementary school
10	Chinese Early Parental Involvement Scale (CEPIS) <i>Assesses parents' perceptions of parental involvement in their children's education.</i>	Hung Lau et al. (2012) China	Home-school conferencing, Preschool involvement	Construct validity	.60 to .71	-	Preschool
11	Quality of Parent-Teacher Relationship Scale in the Kindergarten (QPTRS-K) <i>Measures parents' and teachers' perceptions of their relationship quality.</i>	Petrogiannis & Penderi (2013) Greece	Trust/ acceptance, Communication/ responsiveness	Construct validity	.85 to .86	.81 to .86	Preschool
12	Cocaring Relationship Questionnaire (CRQ) <i>Assesses the parent-perceived relationship quality with the teacher.</i>	Lang et al. (2016) USA	Support, Undermining, Endorsement, Agreement	Construct validity	.81 to .91	-	Preschool

13	Family-School Engagement Scale (FSSES) <i>Measures school-based family engagement based on parents' perceptions.</i>	Schueler et al. (2017) USA	Family-School Engagement Scale	Construct validity (discriminant validity)	.73	-	Preschool up to High school
14	Teacher Efficacy for Promoting Partnership (TEPP) <i>Measures teachers' perceptions on how the school is reaching out to involve parents, community members, and students in a meaningful manner.</i>	Moen & Sheridan (2020) USA	Teacher Efficacy for Promoting Partnership	Criterion validity (concurrent validity) and construct validity	-	.94	Head Start
15	Parent-Teacher Relationship Quality Scale (PTRQS) <i>Measures the relationship quality between parents and teachers of autistic students.</i>	Andoni et al. (2022) USA	Parent-perceived PTR quality, Teacher-perceived comfort with parent, Teacher perceptions of parent abilities	Criterion validity (concurrent validity), and construct validity (convergent validity)	.94	.85 to .93	Preschool up to 2 nd grade programme

Measures with more than one testing study

Reliability and validity

The School-based involvement and Home-school conferencing dimensions from Family Involvement Questionnaire (FIQ), including items such as “*I volunteer in my child's classroom*” and “*I talk to the teacher about how my child gets along with his/her classmates at school*”, developed with parents in preschool, kindergarten, and 1st grade programmes (Fantuzzo et al., 2000). The FIQ was co-constructed with parents and teachers to improve its cultural sensitivity. The School-based involvement and Home-school conferencing dimensions from FIQ also exist in Greek form for parents of preschool children (FIQ-Greek Version) (Manolitsis, 2004), as well as in Chinese form with some revised items to make them more sensitive in Chinese context (FIQ-Chinese Version) (Xia et al., 2020). The School-based involvement and Home-school conferencing dimensions have also been validated in shorter versions for parents of children in preschool, called FIQ-Short form (Fantuzzo et al., 2013) which is used in many studies, such as Bulotsky- Shearer et al. (2016). These dimensions were examined more than once for their reliability and validity (e.g., Fantuzzo et al., 2013; Fantuzzo et al., 2000; Manolitsis, 2004). They have high level of internal consistency (see Table 1). Moreover, researchers examined many types of validity, such as construct validity (convergent validity), and structural validity. Specifically, construct validity (convergent validity) was found between the School-based

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involvement and Home-school conferencing dimensions from the FIQ-Short form and Parent Satisfaction with Educational Experiences (Fantuzzo et al., 2013).

The Parent Satisfaction with Educational Experiences (PSEE) asks parents to indicate their level of satisfaction with their contact experiences of their children's preschool and 1st grade programme (Fantuzzo et al., 2006). The PSEE scale was co-constructed with parent and teachers representing preschool, kindergarten and 1st grade programmes to improve its cultural sensitivity. The PSEE also has validated in Turkish (Ahmetoğlu & Acar, 2017) and in Chinese in which an item has been altered to fit the Chinese context (Hong et al., 2019). Examples of items that assess satisfaction with contact experiences include *"Telephone conversations with teacher"*. The reliability and validity of PSEE were examined more than once (Ahmetoğlu & Acar, 2017; Fantuzzo et al., 2006; Hong et al., 2019). The PSEE has high levels of internal consistency (see Table 1). Fantuzzo et al. (2006) determined the construct validity of the PSEE. Moreover, the construct validity of PSEE was found acceptable for the Chinese version (Hong et al., 2019) and the Turkish version (Ahmetoğlu & Acar, 2017).

The Parent-teacher contact, Parent involvement at school, Quality of parent-teacher relationship, Teacher's perception of parent and Parent endorsement of school dimensions from the Parent-Teacher Involvement Questionnaire-Parent/Teacher Version (PTIQ-P/PTIQ-T) (Fast Track Project, n.d.) were developed as part of a longitudinal study and they have both parent-teacher report versions. These dimensions examine the parents' and teachers' perceptions of children in preschool up to 1st grade programmes about various facets of family-school partnership (Corrigan, 2002; Miller-Johnson & Maumary-Gremaud, 1995). They include items such as *"Called child's teacher"/ "Frequency parent called in the past year"*, *"Visited school on special event"/ "Frequency parent attended special events in the past year"*, *"Feel welcome in child's school"/ "Is the parent interested in knowing the teacher?"*, *"Child's school good place for child"*, respectively. Researchers examined the psychometric properties of the PTIQ-P/PTIQ-T more than once. Construct validity was explored twice (Kohl et al., 2000; Miller-Johnson & Maumary-Gremaud, 1995). Additionally, Mautone et al. (2014) explored the construct validity of one of the PTIQ-P/PTIQ-T's dimensions: Quality of parent-teacher relationship with parents and teachers of children in preschool. The Parent and Teacher Versions of the Quality of parent-teacher relationship showed criterion validity (concurrent validity) with the Homework Performance Questionnaire Teacher Support ($r = .51, p < .01$), the Parent as Educator Scale ($r = .20, p < .01$), the Homework Performance Questionnaire Teacher Support ($r = .27, p < .01$), the Student Responsibility ($r = .32, p < .05$), the Homework Performance Questionnaire Teacher Competence ($r = .20, p < .01$) (Mautone et al., 2014).

The School Participation dimension from the Parental Engagement of Families from Latino Backgrounds (PEFL), including items, such as *“I donate items or my own skills to support activities at my child’s school”* (McWayne et al., 2013; McWayne & Melzi, 2014), developed with parents of preschool children. Its reliability and validity were examined twice. Construct validity of PEFL was explored (McWayne et al., 2013; McWayne & Melzi, 2014). Further validity analyses were conducted with the teacher report of total involvement ($r = .34, p < .001$), the teachers’ logs of parent school contact ($r = .15, p < .005$), and the PSEE ($r = .24, p < .0001$) (McWayne et al., 2013).

The Parent-Caregiver Relationship Scale (PCRS) measures parents’ and caregivers’ mutual perceptions of their relationship through several items, e.g., *“Communication is open”* (Elicker et al., 1997). PCRS developed with parents and teachers in preschool settings. The reliability and validity of PCRS were examined more than once. Its test-retest reliability appeared to be good to excellent, between $r = .59$ and $r = .78$, as its internal consistency (Cantin et al., 2012; Elicker et al., 1997). Construct validity of PCRS (Cantin et al., 2012; Elicker et al., 1997) and its criterion validity were examined (Elicker et al., 1997).

The Family-Professional Partnership Scale (FPPS) is for parents and professionals (e.g., early childhood educators) of children in preschool up to elementary school (Kang, et al., 2020; Summers et al., 2005). The FPPS asks parents’ and professionals’ perceptions about the importance of family-professional partnership and their satisfaction of its, including many items, such as *“Your Child’s Service Providers...Let you know about the good things your child does”* (Summers et al., 2005). FPPS has been validated in a Chinese version-FPPS-C (Kang et al., 2020). Researchers examined the internal consistency and test-retest reliability of FPPS. Its test-retest reliability appeared fair (ICCs = .54) for the family version and good to excellent (ICCs = .60 to .77) for the professional version (Kang et al., 2020). Its internal consistency was good to excellent (see Table 1). Construct validity was examined (Kang et al., 2020; Summers et al., 2005). Construct validity of the family version with Chinese version of the Measure of Processes of Care-20 was significant ($r = .50$ to $.67, p < .01$), as well as of the professional version with the Chinese version of Measure of Processes of Care for Service Provider ($r = .32$ to $.62, p < .01$) (Kang et al., 2020).

The Parent-Teacher Relationship Scale (PTRS) assesses the parents’ and teachers’ perceptions about the quality of their relationships and includes items, such as *“When there is a problem with this child, this parent/teacher is all talk and no action”* (Vickers & Minke, 1995). The PTRS is for parents and teachers of children in preschool up to middle school. Its reliability was examined more than once (Acar & Güldalı, 2017; Vickers & Minke, 1995). Specifically, it has a high level of internal consistency (see Table 1). Construct validity was examined (Acar & Güldalı, 2017; Dawson & Wymbbs, 2016; Vickers

& Minke, 1995). Validity was established between PTRS-II teacher version and the Child's Actual Behavior Scale ($r = .45, p < .01$), the IOWA Conners Rating Scale Oppositional-Defiant Behaviors ($r = -.48, p < .01$), the IOWA Conners Rating Scale Hyperactive/Impulsive Behaviors ($r = -.29, p < .01$), the IOWA Conners Rating Scale Inattentive Behaviors ($r = -.41, p < .01$), the STRS Closeness ($r = .46, p < .01$), and the STRS Conflict ($r = -.56, p < .01$) (Dawson & Wymbs, 2016).

Measures with only one testing study

Reliability and validity

The Perceived teacher outreach and Parent involvement at school dimensions from Parent Survey examine parents' perceptions about involvement and includes items, such as *"Does your child's teacher share information with you in a positive way?"* and *"I asked the teacher how I can help my child with the school work"*, respectively (Patrikakou & Weissberg, 2000). The Parent Survey is for parents of children in preschool up to 3rd grade. These two dimensions presented satisfactory psychometric properties (see Table 1).

The Communicating, Volunteering, Decision-making and Collaborating w/community dimensions from Parent and School Survey (PASS) measure parental involvement in the children's education and they include items, such as *"I feel very comfortable visiting my child's school"* (Ringenberg et al., 2005). The PASS is for parents of children in preschool up to elementary school. Its test-retest reliability has been reported to be fair to excellent, between $r = .40$ and $r = 1.00$ (Ringenberg et al., 2005). Construct validity was examined (White et al., 2019). Criterion validity was confirmed with grouping (e.g., race, gender) outcome variables (e.g., academic achievements) (White et al., 2019).

The Home-school conferencing and Preschool involvement dimensions from the Chinese Early Parental Involvement Scale (CEPIS) assess parents' perceptions of parental involvement in their children's preschool education and include items, such as *"Call the teacher to communicate"* and *"Volunteer in kindergarten"*, respectively (Hung Lau et al., 2012). Construct validity was examined (Hung Lau et al., 2012).

The Quality of Parent-Teacher Relationship Scale in the Kindergarten (QPTRS-K) was created in Greece (Petrogiannis & Penderi, 2013). It measures parents' and preschool teachers' perceptions of their relationship quality and includes many items (e.g., *"Parents in my class show interest in listening to me"*). The QPTRS-K is used in kindergarten. QPTRS-K has high levels of internal consistency (see Table 1). Construct validity was examined. Validity of parent QPTRS-K was found to be satisfactory with the mother's positive parenting ($r = .21, p < 0.005$) and negative parenting ($r = -.10, p < 0.005$), the children's experience in day-care (in months) ($r = -.10, p < 0.005$), and the parenting sense of

competence ($r = -.10, p < 0.005$). Moreover, validity of teacher QPTRS-K was found to be satisfactory with the teacher's age ($r = .13, p < 0.005$), the child temperament ($r = -.15, p < 0.005$), the teacher's job satisfaction ($r = .38, p < 0.005$), and the teacher's general teaching efficacy ($r = .22, p < 0.005$).

The Cocaring Relationship Questionnaire (CRQ) was based on a self-administered assessment of a coparenting relationship scale (Feinberg et al., 2012) and is composed of many items, such as *"My child's teacher asks my opinion on issues related to caring for my child"* (Lang, et al., 2016). CRQ is suitable for parents with preschool children. It has high level of internal consistency (see Table 1). Its construct validity was examined.

The Family-school engagement scale (FSES) measures parents' perceptions about school-based family engagement and is composed of items, such as, *"How often do you meet in person with teachers at your child's school?"* (Schueler et al., 2017). FSES has high levels of internal consistency (see Table 1). The FSES is for parents with children in prekindergarten up to high school. Construct validity (discriminant validity) for the FSES was established with the Walker et al.'s (2005) scale ($r = .55, p < .001$ and $r = .92, p < .001$), the parent satisfaction with the school ($r = .33, p < .001$), the perceptions of school climate ($r = .39, p < .001$), and the parent self-efficacy ($r = .25, p < .001$ and $r = .33, p < .001$).

The Teacher Efficacy for Promoting Partnership (TEPP) (Moen & Sheridan, 2020) measures teachers' perceptions on how the school is reaching out to involve parents, community members, and students in a meaningful manner and includes items, such as *"Offering parents opportunities to problem-solve and make joint decisions both staff and parents are comfortable with"*. TEPP is used with Head Start teachers. Construct validity of TEPP was examined only once. Good criterion validity (concurrent validity) was found with the Teacher Report of Invitations for Parental Involvement ($r = .392, p < .001$) and the Teacher Self-Efficacy for Teaching ($r = .416, p < .001$).

The Parent-Teacher Relationship Quality Scale (PTRQS) (Andoni et al., 2022) was based on the Relationship Quality subscale of the Parent-Teacher Involvement (PTI) and has both parent-teacher report versions, including items, such as *"We have a close and mutually respectful relationship"* and *"This child's parent(s) feels comfortable talking with me"*, respectively. PTRQS is for parents and teachers of autistic children in preschool up to 2nd grade. It presents good psychometric properties. Its internal consistency has been shown to be excellent (see Table 1). Its test-retest reliability has been reported to be fair to good, between $r = 0.49$ and $r = 0.64$. Strong construct validity (convergent validity) was found between PTRQS total score, as well as all three factors of the PTRQS and the parent interview-based measure of PTR quality (ranging from $r = 0.58$ to $r = 0.80, p < 0.001$) (Andoni et al., 2022). Criterion validity (concurrent validity) was found between the three PTR quality factors at Time 1 with the parent-rated PTI ($r = 0.20$), the teacher-rated PTI

($r = 0.62$), the student-teacher relationship scale (STRS) ($r = 0.16$), as well as at Time 2 with the parent-rated PTI ($r = 0.28$), the teacher-rated PTI ($r = 0.78$), the Parent Perceptions of Teacher Effectiveness ($r = 0.68$), the STRS (T) ($r = 0.20$), and the parent interview of PTR Quality ($r = 0.80$) (Andoni et al., 2022).

Discussion

Nowadays, a growing number of measurements that assess family-preschool partnership are available to be used in research, and to assess the relationship between parents and preschool teachers. Although many instruments have been created, many of them have not been adequately validated (e.g., Andoni et al., 2022; Hung Lau et al., 2012). It is argued that the researcher has to carefully choose the adequate measure, in order to ensure the quality of their results, as the quality of the research findings depends on the quality of a measurement. The evidence of validity and reliability, the two most important and fundamental features in the evaluation of any measurement for good research (Mohajan, 2017), are prerequisites to assure quality of a measurement (Kimberlin & Winterstein, 2008). The frequency at which these features have been tested can provide valuable information to researchers on how reliable and valid a measurement is, and how often it is chosen to be used by others. Moreover, the different validation types in which a measurement has been subjected (e.g., face, criterion, structural, construct validity) empowers its validity and in continuity enhance the quality of the research findings. This study is the first to the authors' knowledge that provides a comprehensive review of these properties based on how often they have been tested.

The School-based involvement and Home-school conferencing dimensions from the Family Involvement Questionnaire (FIQ) emerged as the most frequently used dimensions for family-preschool partnerships. Researchers tested their reliability and validity more than once. Additionally, researchers employed different types of validity to establish their validation, such as construct validity (convergent validity) and structural validity (see Table 1). By checking these two types of validity several times, researchers ensured that their measure is a very promising assessment tool, since it may be considered as a useful measure for use in preschool. The Parent Satisfaction with Educational Experiences (PSEE) (Fantuzzo et al., 2006) is another frequently used measure for family-preschool partnership. Its reliability and validity were examined more than once. It is a well validated tool, demonstrating good psychometric properties in terms of reliability (internal consistency) and validity. However, researchers checked only the construct validity of PSEE. More types of validity need to be examined in order to enhance the validation quality of PSEE. The reliability and validity of the majority of measures that have been tested with more than one study on their psychometric properties should be further explored, including different validation types, such as the

criterion validity (predictive validity and concurrent validity) of the FIQ, PSEE, PEFL, FPPS, PTRS, Parent Survey, CEPIS, QPTRS-K, CRQ, FSES. Employing different types of validity in those measures can improve their validation quality and ensure accurate and current measurement of the family-preschool partnership.

Of the measurements that have been tested for their psychometric properties only once, the PTRQS seems to be the most promising. The measurement demonstrated good psychometric properties and its two-informant (parents' scale and teachers' scale) makes it a good tool for estimating the family-preschool partnership. The measure demonstrated good psychometric properties including test-retest reliability, construct validity (convergent validity), and criterion validity (concurrent validity), as well as internal consistency (see Table 1). Although it has been validated only once, the two types of validity on which PTRQS has been subjected, such as construct validity (convergent validity), and criterion validity (concurrent validity) make it a strong measurement. By employing these various types of validation types, researchers have strengthened the validity of their measure, as they ensured the amount of agreement between two different assessments and confirmed the relationship between related constructs. However, it would be beneficial to further check its psychometric properties.

Additionally, cultural sensitivity has been identified as a key component of high-quality family-teacher relationships (Ramos et al., 2015) as the nation's schools are growing increasingly diverse, due to increased migration. As a result of this growing diversity, preschool teachers are interacting with more and more families from different cultures. Consequently, the researchers need culturally sensitive measures to assess the family-preschool partnership. Assessing psychometric properties such as reliability, validity, cross-cultural validity, and bias detection plays a crucial role in gaining culture-sensitive understandings. Some of the reviewed measures' (e.g., FIQ, PSEE) cultural sensitivity has improved. By ensuring that tests are reliable, valid, culturally appropriate, and free from biases, researchers can obtain accurate and meaningful data that reflect the perceptions of participating parties in family-preschool partnership from varied diverse cultural backgrounds.

In conclusion, 15 instruments that aim to assess family-preschool partnerships have been tested for their psychometric properties but many of them have not been used much and are not well-validated. There are seven family-preschool partnership measurements that have been checked more than once for their reliability and validity. Seven of the reviewed measures (e.g., PCRS, FPPS-Family version, and professional version, PASS, PTRQS), have undergone at least two types of validity, such as structural validity, concurrent validity, convergent validity that empower their validity, as well as the quality of the research findings. Consistent with previous findings (Moen & Sheridan, 2020), our findings highlight the need for further test of psychometric properties of the instruments.

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Consequently, it appears crucial for future research to focus on the examination of the properties of existing measures (Andoni et al., 2022). There is a need for well-established and validated instruments to ensure accurate and current measurement of the family-preschool partnerships.

Applicability of the results

Decades of research emphasise the importance of family-preschool partnerships in setting high expectations for student success (Arnold et al., 2008; Cohen & Anders, 2020). Partnership between family and preschool is a necessity for maximising learning experiences and outcomes for preschool children. Meaningful family-school partnerships begin in preschool and have the potential to shape the child's perceptions of school over time. Having tools that assess parents' and preschool teachers' perceptions about their partnership is crucial as they contribute in the investigation of the problematic areas of these. However, research evidence argues that the researchers have to carefully choose valid tool, in order to ensure the quality of their results. The evidence of validity and reliability are prerequisites to assure quality of a measurement instrument (Kimberlin & Winterstein, 2008). Knowing the frequency with which validity and reliability have been tested, researchers would know which measures are validated and they can be used in order to ensure the overall quality of their findings. Moreover, the different types of validity on which a measurement has been subjected, empower its quality. This review informs the researchers that there are seven family-preschool partnership measurements that have been checked more than once for their reliability and validity. Additionally, it states that seven measures have been tested for at least two types of validity. These findings inform researchers in their choice of well-established and validated measures when assessing family-preschool partnership. Utilising the most validated measures to assess the parents' and teachers' perceptions about the family-preschool partnership, researchers will enhance the quality of research findings.

Limitations and future directions

The review undertaken was limited in terms of the parameters established for the review. For example, by focusing on articles published in English and Greek, we likely overlooked relevant and important measurements that may have shed a different light on our findings. Similarly, we reviewed tools that can be used mainly in preschool settings up to elementary school. Perhaps, the primary implication from this review is that further research is needed, and specifically research focused on validation of measures of family-preschool partnership across different samples (e.g., middle school and high school) that would give more information about their psychometric properties. Another important next step is researchers and measure developers to more actively examine and report psychometric properties of their measures.

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