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Inventory of School Supports-Parent Report (ISS-PR): Development and Validation with Military-Connected Families

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Abstract

Tools that assess school supports for highly mobile, military-connected students are lacking. This study describes the development and preliminary validation of the Inventory of School Supports-Parent Report (ISS-PR). Participants were 433 parents (74% female; 62.5% White, 12% Black, 6.5% Asian, 5.5% Pacific Islander, 4% Native American, and 9.5% bi/multiracial; 19% Latinx) of students (grades 3–5) from families with an active-duty military parent. Parents completed the ISS-PR and rated: (a) how welcoming schools were toward military-connected families; (b) parent-teacher relationship quality; and (c) satisfaction with their child's school. We created three proportional index composite scores: a 26-item school supports score, a 13-item parent-focused supports score, and a 13-item child-focused supports score. Results supported the ISS-PR's psychometric properties: summary scores were positively linked to parent-teacher relationship quality, school welcoming, and parent satisfaction with the school. We also found evidence for test-retest reliability for parents completing the inventory with students who had either moved schools or remained in their previous schools. Future studies could use the ISS-PR to assess whether parents' perceptions of the availability and importance of school supports for military-connected families are related to other constructs such as overall school climate, student academic performance, and socioemotional functioning. Schools could use the inventory to determine which supports could potentially have the greatest impact for military-connected families and to what extent parents are aware of the supports schools offer.

Keywords School supports · Military families · School connectedness · Measurement · Education

Highlights

- Despite calls for research on military-connected (MC) families, an inventory of MC parents' perceptions of school supports does not exist.
- We developed an inventory with which MC parents could report on the availability and importance of school supports.
- Inventory scores were positively associated with parent-teacher relationship quality, school welcoming, and school satisfaction.
- Schools could use the inventory to assess parents' awareness of available school supports and whether they are considered important.

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Military-connected (MC) families are subject to unique stressors, including frequent moves in and out of civilian schools (De Pedro et al., 2011). Frequent school transitions have been linked with parent stress, poor parent-teacher relationships, child internalizing symptoms, and a lack of school connectedness (Mehana & Reynolds, 2004; Scanlon & Devine, 2001). Scholars have called for targeted support for MC students and families (Esqueda et al., 2012; Fenning, 2021), but research on how schools can support MC families is lacking (De Pedro et al., 2011). Contributing to the paucity of research in this area is a lack of adequate tools for assessing school supports specific to MC students and families. Described is an effort to develop an inventory that assesses MC parents' perceptions of whether various forms of school support are important and available at their child's school. Included were items assessing parents' perceptions of both parent- (e.g., home-school communication) and child-focused (e.g., welcoming practices) school supports. We hypothesized that scores on this inventory would be positively related to parents' ratings of the degree to which schools welcomed MC students, the quality of their relationship with their child's teacher, and their overall satisfaction with their child's school.

School Mobility and Military-Connected Students

There are currently over 1.6 million MC school-aged children in the United States (U.S. Department of Defense, 2022). Over 90% of MC students attend civilian schools (Esqueda et al., 2012), and it is estimated that MC students change schools three times more frequently than civilian students (Esqueda et al., 2012; Kitmitto et al., 2011; Masten, 2013). Military-related moves, also known as a *permanent change of station* (PCS), often include a change in school district for MC children. Frequent moves can be disruptive for MC parents, families, and students (Heinlein & Shinn, 2000; Jelleyman & Spencer, 2008). Researchers find associations with increased parental stress and declines in students' academic and socio-emotional functioning (Engec, 2006; Ou & Reynolds, 2008; Rumberger, 2015). High mobility has also been shown to predict lower educational attainment in early adulthood (Hagan et al., 1996).

Military service is more than a profession—it represents a distinct culture (Cozza & Lerner, 2013). Cole (2014) identified five aspects of military culture: language, hierarchy, sense of rules and regulations, self-expectations, and self-sacrifice. Military family life also has distinct features, including living with the risk of physical and psychological harm to deployed service members, service members

navigating reintegration into civilian life, and "the relatively frequent churning of schools and peer groups experienced by children of active-duty service members" (Mancini et al., 2020, p. 647). Within this culture, a premium is placed on making sacrifices, being resilient, and weathering stressors with equanimity (Meyer, 2015). Perhaps in part due to this resilience and perseverance, those who identify with military culture often feel unseen and underappreciated by educators in civilian schools (Cole, 2014; Hall, 2011; Soeters et al., 2006). Because MC families are often seen as resilient, school officials might assume these families have fewer needs compared to other highly mobile populations (e.g., children of migrant workers, children in foster care, etc.).

In fact, researchers find that MC parents, on average, believe that civilian schools fail to provide adequate support for their students (Berkowitz et al., 2014). Most school staff lack adequate understanding of military culture, which limits the support offered to MC students and means the needs of MC students can go unnoticed until significant problems arise (Cole, 2014). There is also a tendency to view MC families as highly resilient (Cramm et al., 2018) and for MC parents to show hesitancy about seeking school support that could negatively affect their standing in the military (Bradshaw et al., 2010; De Pedro et al., 2014; Hoge et al., 2004).

Inadequate support for MC students could also stem from uncertainty about the needs of these students. For example, research suggests that many MC students cope well with multiple transitions (Bradshaw et al., 2010; Masten, 2013). Yet, other studies suggest that highly mobile MC students are at greater risk for poor functioning than civilian students (Masten, 2013). Cramm et al. (2018) suggested that these apparent contradictions in research suggesting MC children and families are "at risk" versus findings suggesting MC families are strong and resilient likely contribute to uncertainty on the part of schools about how best to support these families.

Given this body of work suggesting that civilian schools struggle to meet the needs of MC students and families, scholars have called for research examining the processes by which school staff can support highly mobile MC students (Fenning, 2021). A significant impediment to this work is the lack of adequate measures of MC families' experiences of school supports. For example, we could find no published studies on the development and validation of tools for assessing the extent to which MC parents viewed school supports as important and available at their child's school (Astor et al., 2013; De Pedro et al., 2011; Esqueda et al., 2012). Absent sound measurement, the question of whether MC parents and students access and benefit from available school supports will remain unanswered.

School Supports for Military-Connected Students and Families

There is ample research indicating that a supportive school environment is associated with better overall functioning for both students and families (Ensminger & Slusarcick, 1992; Leventhal et al., 2001). Parents who feel supported by their children's schools report lower parenting stress, higher student academic functioning, and higher emotional well-being of their child (Gruman et al., 2008). However, few empirical studies have examined school supports for MC families or MC families' perceptions of school supports (Berkowitz et al., 2014; Siegel et al., 2019). Berkowitz et al. (2014) gathered data from eight school districts in the San Diego area and found that schools were an important source of potential support for MC families; nevertheless, MC parents had more negative appraisals of their children's schools than nonmilitary parents. Specifically, MC parents perceived their children's schools as less encouraging of parent involvement and reported that information on educational resources for their children was lacking (Berkowitz et al., 2014). Siegel et al. (2019) explored school welcoming practices across five California school districts and found that among MC parents, who comprised approximately one quarter of the respondents, valued school practices included assistance with school transitions, compassion for children's unique experiences, acknowledgement of the challenges associated with deployment and reintegration, and recognition of families' service.

Current Study

In this study, we developed and evaluated an inventory that assesses MC parents' perceptions of the importance and availability of various forms of school support. We used an iterative process (i.e., literature review, interviews with key stakeholders, stakeholder review of the inventory) to develop the inventory; we then examined its psychometric properties, including test-retest reliability, convergent, and discriminant validity. Our research questions included: (a) will our school supports inventory significantly correlate to theoretically associated constructs (i.e., school welcoming, parent-teacher relationship quality, etc.)?, (b) will the inventory demonstrate adequate discriminant validity as evidenced by the lack of a significant association with a theoretically unrelated variable (i.e., number of deployments)?, and (c) will inventory scores at T1 be related to scores collected ~6 months later at T2? We treated the third research question as exploratory given the nascency of the inventory and because family and student school supports needs naturally change over time. We hypothesized that scores from this inventory would be positively linked to

parents': (a) ratings of the degree to which schools were welcoming to MC students and families; (b) ratings of the quality of their relationship with their child's teacher; and (c) their level of satisfaction with their child's school. We expected strong, positive links between inventory scores and these variables based on research suggesting that a supportive school environment is linked to a stronger sense of perceived welcoming, parent-teacher relationship, and level of school satisfaction (Astor & Benbenishty, 2014, Astor et al., 2017; Berkowitz et al., 2017; Samdal et al., 1998; Spencer et al., 2020). We also assessed the number of students who had experienced a parent's deployment as a test of discriminant validity. That is, we hypothesized that this variable would not be related to scores on the school support inventory. Provided that the measure demonstrates adequate psychometric properties, it could be used by researchers and school officials to assess MC parents' perceptions of the availability and importance of school supports to MC families.

Method

Participants

Participants were 433 parents (26% male, 74% female, 1% genderqueer/gender non-confirming) enrolled in a larger study examining the role of school supports as a predictor of academic performance in MC students in elementary and early middle school. Recruited families had at least one active-duty parent and a 3rd- (45%) or 5th- (55%) grade target student (52% boys, 48% girls) enrolled in a civilian public school district located near a large U.S. military installation. We recruited families with students in 3rd and 5th grade because past research suggests that children begin to reliably complete most self-report measures at this age (Woolley et al., 2004). In addition, due to the longitudinal nature of the larger study from which these data are drawn and to maximize our potential sample, we recruited families with students in non-consecutive elementary school grades in two consecutive years.

In most families, the service member was in the Army (86.6%), followed by Air Force (6%), Marines (2.1%), Navy (1.6%), National Guard (1.6%), Coast Guard (0.2%), or multiple branches (1.9%). Most (93%) parents indicated that only one parent in the home was active duty, 5% indicated that both parents in the home were active duty, and about 2% indicated their family no longer had an active-duty service member by the time the data were collected. Among parents who completed demographic measures, most were married or living with a partner (90%); the remainder were divorced (7%), separated (1.9%), or single or never married (1.2%). The majority of parents identified

as White (62.5%), 12% as Black or African American, 6.5% Asian, 5.5% Pacific Islander, 4% Native American and 9.5% as another racial identity (e.g., bi/multiracial). In addition, 19% identified as Latinx. The racial and ethnic demographic breakdown for students was similar to that of parents. At the time of the survey, 15% of parents reported their child had experienced at least one parent deployment since they entered kindergarten ($M = 2.46$, $SD = 3.40$), with approximately 55% of the deployments lasting 12 months or longer.

Procedures

Two cohorts of families were recruited for the larger study. Recruitment began in January 2019 for Cohort 1 and in January 2020 for Cohort 2. There were 198 parents in Cohort 1 and 235 parents in Cohort 2. The two cohorts were demographically similar and had similar scores on all key variables (i.e., school supports, parent-teacher relationship quality, parent-reported school satisfaction, and deployment) and thus are combined in all analyses. For both cohorts, an initial email was sent by a district-level administrator to all 3rd- and 5th-grade parents announcing the study, alerting them that more study information would be sent home with their student, and encouraging them to complete the consent form and return it to their child's teacher or complete it online. Teachers were provided a brief (approximately 1-min) video that introduced students to the study and explained that participation required obtaining parent consent and returning the form to their teacher. Students were instructed to return the form regardless of parents' military status or the decision to participate; teachers in classrooms that returned 75% of the forms were given a $25 Amazon gift card to be used for class activities. Reminder emails were sent to all 3rd- and 5th-grade parents. In addition, parents who had identified with the school district as MC were mailed a copy of the consent form and asked to sign and return it to their child's teacher. A total of 4672 consent forms were distributed across both cohorts. Of these, 3324 forms (71%) were returned, with 673 parents (20%) indicating that their family was MC. Of these MC parents, 531 (79%) consented to participate in the study, and 82% of those who consented completed the initial survey, resulting in a final sample of 433 parents.

Cohort 1 parents completed surveys in Spring 2019; Cohort 2 parents completed surveys in Spring 2020, after schools in the district had closed due to the Covid-19 pandemic. The school supports inventory was re-administered to parents in both cohorts about 6 months after their baseline survey which enabled assessments of test-retest reliability. 224 Cohort 1 parents and 220 Cohort 2 parents completed follow-up surveys. Individual survey links were sent to parents via email with reminders by phone, text, and email. Parents received a $20 gift card for completing the survey. All study procedures were approved by the Boston University Institutional Review Board.

Measures

Inventory of School Supports-Parent Report (ISS-PR)

Development of the ISS-PR began with review of published research as well as open-source platforms (e.g., government, nonprofit, and education websites, handbooks) that were relevant to MC family and student transitions. This initial review allowed us to gauge the range of school supports provided to other highly mobile student populations (e.g., homeless, migrant, foster care involved) as well those supports provided to MC students and families. From this review, we identified the following broad types of support: (a) proactive supports (e.g., school data systems and new student surveys designed to help schools track student mobility, guidebooks to foster school connectedness); (b) technology-based supports (e.g., mobile apps, virtual school tours, social media efforts, online registration portals); (c) school-specific programs (e.g., counseling and mental health services, academic credit recovery programs, newcomer clubs and buddy programs, summer bridge programs); and (d) district-wide practices (e.g., administrative policies, curricula development; Fenning, 2021; Finnane, 2021).

We then interviewed various stakeholders, including the district's military family liaison, the supervisor of Positive Behavioral Intervention Supports (PBIS), school principals, school counselors, and MC parents and students. Part of these interviews involved providing stakeholders with summaries of what we had previously learned about school supports and asking for their input on areas we may have missed. Based on this stakeholder feedback, we added supports to the inventory including: (a) formal academic supports for students; (b) formal social-emotional supports for students; (c) formal supports for parents and families; (d) informal supports for students or families; and (e) welcoming practices. We also identified whether the type of support was specific to MC students and families, was applicable to transitioning or highly mobile students more broadly, or was a universal school support. In addition, reviewing the measure with MC parents suggested a further categorization that distinguished parent-focused supports from student-focused supports.

The final version of the ISS-PR contained 26 items. For each item, parents were asked two questions. First, "Does your child's current school offer this type of support?" with four response options: (a) "I don't know;" (b) "No;" (c) "Yes, but I have not [or 'my child has not'] experienced it;"

Table 1 Inventory of School Supports-Parent Report (parent-focused support) proportional score item descriptives

Item	M	SD
Parent Transitions		
Registration supports (e.g., online registration; ability to register a child despite missing documents)	0.61	0.49
Informational supports (e.g., school website features for new families; community resource packet [mailed or online])	0.73	0.45
Communication during your transition (e.g., specific staff person ["point person"] to help with your transition)	0.44	0.50
Preparation for future transitions (e.g., binder/record of important documentation, academic history etc., that family can take to their next school; teacher-to-teacher communication prior to/during transitions)	0.36	0.48
Parent Welcoming		
Activities to welcome and engage new families (e.g., "host family" program; school open house)	0.63	0.48
Resources to make new families feel welcome (e.g., school welcome center; school website features [e.g., welcome videos, webinars])	0.47	0.50
Parent School Involvement		
Practices that connect families with the school and teachers/staff (e.g., "Back to School" night; school picnic; picnic in the park; PTO/PTA events; curriculum nights)	0.94	0.25
Practices that connect families with resources and information (e.g., mobile app connecting families to resources; school resources packet; social media such as school Facebook page, Twitter pages)	0.87	0.34
Parent Connections to MC Parents		
Supports that connect families (e.g., coffee groups; family math/STEM nights)	0.80	0.40
Supports that connect military families with other military families (e.g., Purple Up; Veteran's Day events; family advocacy programs; Watch D.O.G.S. [dads' program])	0.72	0.45
Parent School-Home Communication		
Communication of students' academic progress (e.g., phone calls/emails from teachers; use of online portal to communicate progress, grades, etc.; mobile phone app to communicate with teachers directly)	0.94	0.24
Communication of school updates/information (e.g., online updates [school home page, Twitter, Facebook]; live-streamed school events; PTO/PTA meetings)	0.91	0.29
Communication about resources/opportunities for military families (e.g., school calendar of military-related events; school provision of information about resources for military families)	0.56	0.50

M = mean, *SD* = standard deviation

and (d) "Yes, and I have [or 'my child has'] experienced it." Second, "How much do you think this support matters [or is important] to military families?" with response options ranging from 1 (*not at all*) to 5 (*very much*). Thirteen items assessed parent-focused supports (see Table 1): four of these items focused on transition supports; two on parent welcoming practices; two on school involvement; two on connections to other MC parents; and three on communication between school and home. The remaining 13 items assessed child-focused school supports (see Table 2): two focused on welcoming practices; two on transition supports; two on school connectedness; three on academic activities; and four on social-emotional activities.

To capture the extent to which parents perceived their child's school as a supportive environment for MC families, we created a proportional index score reflecting the proportion of items parents indicated were important to military families that were available at their school. We first recoded parents' importance ratings for all 26 items by coding scores of 3 through 5 (i.e., scores at least "somewhat" important) as 1 and importance ratings of 1 (*not at all important*) or 2 (*very little importance*) as 0. Second, we also dichotomized ratings of availability such that a rating of "I don't know" or "No" was coded as 0 and ratings of "Yes, but I have not [or 'my child has not'] experienced it" or "Yes, and I have [or 'my child has'] experienced it" was coded as 1. Availability ratings of "I don't know" and "No" were combined because we were interested in indexing parents' subjective perception on whether supports were available at their school rather than an objective measure of whether school actually offered certain supports. We then added the number of "important" supports (i.e., the number given score of 1 vs. 0 on the dichotomized importance rating) and calculated the proportion of these supports that were present at their

Table 2 Inventory of School Supports-Parent Report (child-focused support) proportional score item descriptives

Item	M	SD
Child Welcoming		
Activities to welcome and engage new students (e.g., summer bridge program; school orientation)	0.46	0.50
Resources to make students feel welcome (e.g., extensive signage in school for new students; school tour [virtual, in-person])	0.45	0.50
Child Transitions		
Activities to support students academically during transitions (e.g., school provision of packet of assignments during travel/transitions; flexible homework requirements during transitions)	0.41	0.49
Activities to support students socially/emotionally during transitions (e.g., school facilitation of departing students saying goodbye to classmates and teachers)	0.38	0.49
Child School Connectedness		
Activities to get students involved, help them meet peers (e.g., sports and clubs that flexibly allow new students to join; lunch groups; buddy bench on playground)	0.68	0.47
Activities/resources to connect students in the classroom (e.g., advisory program; homeroom activities)	0.56	0.50
Child Academic Activities		
Activities to support individual students' academic needs (e.g., working with you to ensure appropriate class placement [ability grouping]; individual tutoring; credit recovery opportunities, extended time for instruction [e.g., weekends, summers]; support with transferring IEP, 504 plan [for academic needs])	0.69	0.46
Groups to support academic needs (e.g., group tutoring; math/reading groups)	0.66	0.47
Academic activities for military children (e.g., classroom curricula incorporating military-specific books; lessons)	0.28	0.45
Child Social/Emotional Activities		
Informal individual supports (e.g., teacher, or other adult at school, connecting with students individually to offer support; someone helping your child meet other students, make friends)	0.56	0.50
Activities to support individual students' needs (e.g., mentoring; check-in/check-out; behavior interventions; IEP, 504 Plan [for social emotional needs])	0.68	0.47
Groups to support students' social/emotional needs (e.g., anti-bullying groups; social skills groups; girls' and boys' groups; Club House)	0.54	0.50
Social/Emotional activities for military children (e.g., Military Family Life counseling; deployment groups; excused absences prior to, or following, parent's deployment)	0.48	0.50

M = mean, *SD* = standard deviation

school. The final proportion scores ranged from 0 to 1, with 1 indicating the school offered all supports the parent indicated as important, and 0 indicating that none of the supports the parent indicated were important were offered at their school. For example, a parent who indicated that 20 of the listed supports were important to MC families and that 15 of those 20 supports were available at their child's school would have a score of 0.75. Scoring syntax and instructions are included as supplemental material.

Perception of the School Welcoming Military Families

We measured the extent to which parents perceived schools were welcoming toward or accommodating of MC families using items from the Perceived Context for Reception scale adapted to make them specific to military families (PCR; Schwartz et al., 2014). The PCR is a 6-item measure indicating the extent to which parents perceive their child's school as *unwelcoming* to MC families (e.g., "Students whose parents are in the military are not welcome at this school") and is scored on a scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). In past work, the measure has demonstrated strong internal consistency reliability and validity when used with Hispanic/Latinx immigrants (Schwartz et al., 2014). For this study, we reverse coded the scale average to indicate parents' perceptions of how welcoming the school is to MC families. Within this sample, the PCR had good internal consistency reliability (Cronbach's α = 0.83; Taber, 2018).

Parent-Teacher Relationship Quality and School Satisfaction

Parents' reports of their relationships with their child's teachers and their overall satisfaction with their child's

school were assessed using the Parent Teacher Involvement Questionnaire (PTIQ-PTR; Conduct Problems Prevention Research Group, 1991). The parent-teacher relationship scale of the PTIQ-PTR is an 8-item measure (e.g., "You feel comfortable talking with your child's teacher about your child") rated on a five-point scale from 1 (*Not at All*) to 5 (*Very Much*). In the current sample, the PTIQ-PTR had good internal consistency reliability (Cronbach's α = 0.90; Taber, 2018). The School Endorsement (i.e., satisfaction) subscale of the PTIQ (Conduct Problems Prevention Research Group, 1991) is a four-item measure (e.g., "You have confidence in your child's school") rated on the same five point scale from 1 (*Not at All*) to 5 (*Very Much*). In the current sample, the PTIQ-SE had good internal consistency reliability (Cronbach's α = 0.89; Taber, 2018).

Deployment History

To assess MC families' experience with parent deployment, we asked parents to report how many times their child had experienced deployment of their active-duty parent (defined as being away for more than two weeks for military-related work) since the child entered kindergarten. For this item, numerical content validation was used in Qualtrics giving parents the ability to type in any number (≥0).

Data Analytic Plan

Missing data were handled through full information maximum likelihood (FIML; Enders & Bandalos, 2001). We conducted descriptive statistical analyses (i.e., means and standard deviations) for all 26 items of the ISS-PR index. Given that we formed a proportional index score that does not necessarily measure an underlying dimension of school supports (i.e., there was no theoretical basis to assume that the presence of a given support in a school should be associated with the presence or absence of other supports), we did not perform tests for internal consistency reliability and exploratory factor analyses (Streiner, 2003). Instead, we evaluated the ISS-PR's psychometric properties via

convergent validity, discriminant validity, and test-retest reliability analyses similar to other work developing and psychometrically evaluating an index (see Hawes et al., 2021). Because key stakeholders suggested that we distinguish between parent-focused and child-focused supports, we conducted validity tests using a parent-focused supports index and a child-focused supports index in addition to the full 26-item index. Validity tests included cross-sectional bivariate correlations to examine whether the ISS-PR was linked to theoretically related constructs and test-retest analyses to examine temporal reliability. We conducted two sets of test-retest correlations: one with a subset of students who changed schools between T1 and T2 as well as another with a subset of students who did not change schools between T1 and T2. Assuming that not all schools offer the same number and type of supports, we expected test-retest correlations to be stronger for students who did not move between T1 and T2.

Results

Reliability and Validity Analyses

We conducted bivariate correlations to examine associations among the ISS-PR proportional index scores (Tables 3 and 4). The 26-item full composite supports proportional index was significantly ($p < .01$) related to both the 13-item parent-focused proportional index composite score and the 13-item child-focused proportional index composite score (rs ranged from .89 to .93 for participants who changed schools between T1 and T2; rs ranged from .91 to .95 for participants who did not change schools between T1 and T2). The 13-item parent-focused and 13-item child-focused proportional index scores were also significantly ($p < .01$) correlated ($r = .67$ for participants who changed schools between T1 and T2; $r = .73$ for participants who did not change schools between T1 and T2). Test-retest reliability correlations for all three index composite scores are also presented in Tables 3 and 4. Table 3 presents correlations

Table 3 ISS-PR Test-Retest Reliability for Participants Who Changed Schools Between T1 and T2

Variable (ISS-PR proportional scores)	1	2	3	4	5	6
1. T1 Full 26-item inventory	–					
2. T1 Parent-focused supports (13 items)	.89**	–				
3. T1 Child-focused supports (13 items)	.93**	.67**	–			
4. T2 Full 26-item inventory	.35**	.40**	.25	–		
5. T2 Parent-focused supports (13 items)	.25*	.34**	.12	.87**	–	
6. T2 Child-focused supports (13 items)	.37**	.39**	.31*	.91**	.59**	–

Test-retest reliability for ISS-PR proportional index scores at T1 (Spring 2019/Spring 2020) and T2 (Fall 2019/Fall 2020). *ISS-PR* = Inventory of School Supports-Parent Report

*$p < .05$, **$p < .01$

Table 4 ISS-PR Test-Retest Reliability for Participants Who Did Not Change Schools Between T1 and T2

Variable (ISS-PR proportional scores)	1	2	3	4	5	6
1. T1 Full 26-item inventory	–					
2. T1 Parent-focused supports (13 items)	.91**	–				
3. T1 Child-focused supports (13 items)	.95**	.73**	–			
4. T2 Full 26-item inventory	.54**	.52**	.52**	–		
5. T2 Parent-focused supports (13 items)	.49**	.46**	.50**	.92**	–	
6. T2 Child-focused supports (13 items)	.53**	.52**	.49**	.96**	.79**	–

Test-retest reliability for ISS-PR proportional index scores at T1 (Spring 2019/Spring 2020) and T2 (Fall 2019/Fall 2020)

ISS-PR Inventory of School Supports-Parent Report

*$p < 0.05$, **$p < 0.01$

including a subset of our sample who changed schools between T1 and T2. Table 4 presents correlations including a subset of our sample who did *not* change schools between T1 and T2. Results indicated T1 ISS-PR scores were significantly (T1-T2 parent-focused supports $p < .05$, otherwise $p < .01$) related to T2 scores (rs ranged from .25 to .40; see Tables 3 and 4). However, as expected, test-retest correlations for students who did not change schools were generally higher than for students who did change schools between T1 and T2 (rs ranged from .46 to .54, ps $< .01$). Correlation analyses also provided evidence for the ISS-PR's convergent and discriminant validity (see Table 5). As expected, all three composite ISS-PR scores were significantly related to school welcoming, parent-teacher relationship quality, and school satisfaction (rs ranged from .29 to .53, ps $< .01$). None of the three ISS-PR proportional index scores were significantly related to the number of deployments the family had experienced since the child entered kindergarten (rs ranged from $-.09$ to $-.03$, ps $> .05$). Notably, we also tested whether ISS-PR intercorrelations and correlations among ISS-PR scores and other study variables were consistent across cohorts. We found an identical pattern of correlations. Specifically, ISS-PR scores were similarly related to each other at T1, test-retest correlations were similar, and both convergent and discriminant validity tests followed the same pattern across cohorts. For this reason, we solely reported results combining both cohorts of participants.

Discussion

In this study, we addressed the need for a way to assess parent's experience of school supports for MC families. We developed and psychometrically evaluated the Inventory of School Supports-Parent Report (ISS-PR), a tool by which MC parents rate the degree to which important school supports are available at their child's school. Because stakeholder feedback from district and school officials and MC

families suggested that we distinguish between parent-focused and child-focused supports, we formed three proportional index composite scores: a full 26-item supports score, a 13-item parent-focused supports score, and a 13-item child-focused supports score. All three composite scores demonstrated evidence for test-retest reliability as well as evidence for convergent and discriminant validity. Parents' ratings of the availability of supports they considered to be important to MC families were stable over a period of 6 months. As expected, supports proportional index scores were also significantly and positively linked to the degree to which parents felt their child's school was welcoming to MC families, to their relationship with their child's teacher, and to how satisfied they were with their child's school. Consistent with expectations, ISS-PR scores were not related to the number of times families experienced deployments since the child entered kindergarten.

Broadly, these results are consistent with prior work that indicated when MC parents feel that their family's needs are being met by their child's school, they feel more satisfied with and welcome at their school, as well as experience a more positive relationship with their teacher (Fenning, 2021; Finnane, 2021). Generally, parents rated all 26 school supports as at least fairly or very important. On average, over half of parents identified that most supports they identified as important were available at their child's school (i.e., mean ISS-PR proportional index scores > 0.50). However, despite being rated as important to MC families, parents indicated that parent-supports related to preparing for future school transitions as well as child-supports for facilitating academic school transitions and providing military-related academic activities were available at their child's school less than 40% of the time on average. This is noteworthy given that recent work has identified how important school supports designed to aid MC families' transitions in and out of schools are for these families (Siegel et al., 2019).

Notably, test-retest correlations for ISS-PR scores with a subset of the sample who changed schools between time

Table 5 Means, standard deviations, internal consistency reliability, and correlations

Variable (ISS-PR proportional scores)	M	SD	School Welcoming (M = 4.53, SD = 0.58, α = 0.83)	Parent-Teacher Relationship Quality (M = 4.46, SD = 0.68, α = 0.90)	School Satisfaction (M = 4.31, SD = 0.65, α = 0.89)	Deployment (M = 2.46, SD = 3.40)
Full 26-item inventory	.62	.25	.34**	.40**	.53**	−.05
Parent-focused supports (13 items)	.70	.23	.35**	.38**	.49**	−.09
Child-focused supports (13 items)	.53	.31	.29**	.36**	.49**	−.03

Deployment = number of deployments since child was in kindergarten

ISS-PR Inventory of School Supports-Parent Report

*p < .05, **p < .01

points were lower than for families who did not change schools. This phenomenon could be attributed to a variety of factors, but one possibility is that some parents could be less aware of the specific supports their children's schools offer because they had not yet been made aware of what was available. Parents of children who stayed in the same school or district over the 6 month period likely had a greater level of awareness of the school supports available to families.

Strengths, Limitations, and Future Directions

This study has several strengths. To our knowledge, this is the first study used to develop a measure to assess how MC parents view the importance and availability of various types of school support. Iterative development of the ISS-PR, informed by input from key stakeholders and a broad literature review of school support domains, helped ensure its content validity. Our data were gathered from a large sample of MC parents whose child was enrolled in a public elementary school with a six-month gap between survey administrations that allowed for a sufficient estimate of test-retest reliability.

Our study also had several limitations, including the fact that our sample was recruited from a single school district. MC parents whose children are enrolled in other districts could have different perceptions of available school supports. We also note most MC families in our sample were Army-affiliated (the Army is the largest of US service branches); therefore, generalizability of our findings to families affiliated with other military branches is limited. It is likely that across various branches of the military, MC families have different experiences with deployment and PCS-related moves (Institute of Medicine, 2010). The study was also limited by use of a single informant (parents) and these were parents of elementary-school-aged children. It is likely that school supports needed by MC students change as children age. Thus, the utility of ISS-PR with parents of

older children is a remaining question. There is also a need to examine the extent to which school supports are perceived as not only available and important but also helpful. For example, it would be useful to know the extent to which ISS-PR scores are related to children's perceptions of school belonging, peer victimization, internalizing symptoms, academic performance, and other important indicators of wellbeing and school success.

Implications for Research and Practice

Our findings offer several directions for future research. First, more work is needed to examine the psychometric utility of the ISS-PR, including studies with samples that draw from a diverse array of school districts in the United States. Much of public education in the U.S. is regulated at state and local levels, so there are likely important differences in how school districts support students and families (Iatarola & Stiefel, 2003; U.S. Department of Education, 2021). We also see merit in research that examines how the ISS-PR can be used with other highly mobile student populations. Indeed, only a handful of items on the ISS-PR index focus on school supports specific to MC students and families, whereas the majority tap into general school supports. These general supports items could be used to gather impressions from parents of children who are homeless, children in the foster care system, and children whose parents are migrant farm workers. We would expect both commonalities and unique needs across diverse groups of highly mobile students. General supports items could also be used to assess the extent to which parents of all students perceive schools as providing adequate support to their student. Also useful would be research testing whether ISS-PR scores are tied to levels of parental stress or family strain, given previous work suggesting a link between the provision of school support and parental stress (Floyd & Gallagher, 1997; Seefeldt, 1985).

Our findings also offer potential implications for practice. The ISS-PR proportional index score can be understood as a measure of how supportive a particular school is for MC families. School districts could use this measure to assess the extent to which they are adequately serving MC families, and individual schools can use the measure to evaluate their efforts to improve the supports they offer to MC families. Although not a focus of the current study, school psychologists, counselors, and administration officials could also use separately ISS-PR rating of the importance and availability of various supports; the former could be used to gauge which types of supports are most meaningful for their MC parent constituents, whereas the latter would enable schools to assess parents' awareness and use of various school supports.

Conclusion

This study contributes to a growing body of research on the unique educational experiences of MC students and provides a much-needed means for assessing parents' perceptions of supports at their child's school. Past research documented a need for a better understanding of military connected (MC) families' perceptions on school supports. We developed an Inventory of School Supports-Parent Report (ISS-PR) to allow parents to report on their awareness of the availability of supports and how important they felt these supports were to MC families. The full ISS-PR includes 26 unique school supports that could be relevant to MC families. Half of the items index child-focused supports and the other half index parent-focused supports. The ISS-PR produces proportional index scores that document parents' perceptions of the proportion of supports they are aware are available at their child's school to the number of supports they consider important to MC families. Our findings support the psychometric utility of the ISS-PR, including test-retest reliability and significant associations with parents' ratings of school welcoming, parent-teacher relationship quality, and school satisfaction.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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