

Evidence-based Interventions for Immigrant Students Experiencing Behavioral and Academic Problems: A Systematic Review of the Literature

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Abstract

The purpose of the present research review is to identify effective, high quality school-based interventions for immigrant students with disabilities or academic and behavioral problems. A systematic review of the literature was conducted to synthesize international research studies. Initial and criteria-based selection processes yielded six intervention studies published between 1975 and 2010. Two of the studies are academic interventions while four are behavioral interventions. Three studies were conducted in the United States while the remaining three in Israel, Canada, and Norway. The identified studies were evaluated against the quality indicators of special education research. Three experimental studies met the minimum criteria for acceptable methodological rigor. The results show an urgent need for methodologically robust intervention studies in the field of special education for immigrant students. Implications for research and practice are discussed.

KEYWORDS: Immigrant Students, Migration Stress, Behavioral and Academic Challenges, Evidence-Based Interventions, International Research

Immigrant students are the fastest growing student population in the United States (Capps et al., 2005; Suárez-Orozco, Suárez-Orozco, & Todorova, 2010). Cultural and linguistic diversity that immigrant youth bring to the United States are vital resources, which could provide opportunities for enriching academic and social contexts of U.S. schools for all students. This process demands that educators understand and adequately address diverse strengths, needs, and interests of immigrant students through evidence-based interventions. Historically, immigrant students, especially immigrant students with disabilities or general academic and behavior difficulties, experience negative educational and post-school outcomes (Arzubiaga, Nogueron & Sullivan, 2009). Moreover, current policy initiatives, litigations, and school-wide prevention programs (e.g., No Child Left Behind, Race to the Top, Response to Intervention [RTI], and Positive Behavioral Interventions and Supports [PBIS]) have created an increasing

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demand for educators to use evidence-based instruction and interventions (Sugai & Horner, 2009). The present review addresses what the evidence-based interventions are for immigrant students experiencing academic and behavioral difficulties or identified with emotional or behavioral disorders (EBD).

On Immigrant Students

Immigrant is an umbrella term for foreign-born youth and for first generation youth from immigrant families. In the United States, immigrant children account for 10-15% of youth under the age of 18 (U.S. Census Bureau, 2012). It is expected that this percentage will rise to about 30% in the next few decades (Passel, 2011). Although relative risk ratios vary by country of origin, on average, immigrant students experience significantly higher rates of school failure and dropout and at risk for disability (e.g., physical disabilities, depression and posttraumatic stress disorder [PTSD]; Suárez-Orozco et al., 2010). It is imperative for practitioners and researchers in the field of EBD to address the psychosocial aspects of immigration where individual factors (e.g., prior educational experience and resiliency) intersect with social and educational barriers in the resettlement countries (e.g., social rejection and prejudice) that result in negative outcomes (Harry, Arnaiz, Klingner, & Sturges, 2008; Suárez-Orozco et al., 2010). In the present review, we excluded youth identified as refugees, asylum seekers, and stateless people as those youth's psychological, social and legal experiences and challenges may be different than that of immigrants (Bal & Arzubiaga, 2013; Birman, 2002).

Though immigrant youth are often equipped with rich individual and cultural resources, the transition to an unfamiliar country is arduous. Immigrant youth from nondominant racial/ethnic and linguistic backgrounds can encounter immense psychological and structural challenges. Most often, immigrants reside alongside the other racially and economically marginalized communities in "toxic neighborhoods" (Anyon, 2005) characterized by high rates of poverty, violence, and limited socioeconomic and educational opportunities. Resettling in such communities results in *the immigrant paradox of the United States* (Suárez-Orozco, Rhodes, & Milburn, 2009): While immigrant families take considerable risks to immigrate in pursuit of better opportunities, the more time they spend in the United States, the worse outcomes they have. Suárez-Orozco and colleagues (2009) found that first-generation immigrant youth had higher academic engagement and aspirations and less physical and psychological health issues (e.g., obesity, cardiovascular problems, and substance abuse) compared to second-generation immigrant youth. When we consider

the ways in which effective interventions are developed that facilitate equal academic and behavioral learning opportunities and outcomes for immigrant students with disabilities and/or academic and behavioral difficulties, it is important to comprehensively understand and address the complexities of how individual and structural factors interact to promote or obstruct educational opportunities and outcomes for immigrant students.

Psychological Experiences of Immigrant Youth

Immigrant youth are impacted by various psychosocial factors. Crossing multiple cultural and political borders is difficult and emotionally taxing, as the ensuing immigration stress can be immense. In this section, three specific categories of immigration stress are reviewed: (a) *migration stress*; (b) *acculturative stress*; and (c) *traumatic stress* (Birman, 2002).

Migration Stress. Migration stress is exposure to the various stressors of departing a familiar environment (Birman, 2002). Leaving behind friends, family, homes, pets, and an established social network bestows a deep sense of loss and may result in feelings of survivor guilt (Suárez-Orozco et al., 2010). In many cases, immigrant families migrate multiple times within the resettlement country in search of better economic opportunities or to avoid social and legal challenges (e.g., anti-immigrant attitudes and laws) (Portes & Rumbaut, 2006). Thus, migration stress may be experienced repeatedly. In schools, migration stress prevents students from feeling comfortable and belonged (Birman, 2002; Suárez-Orozco et al., 2010).

Acculturative Stress. Acculturative stress is associated with adapting to new social and cultural contexts (Birman, 2002). Immigrants are challenged with participating in new cultural practices, learning new languages and meeting different expectations while dealing with harsh physical and social circumstances. Immigrant youth, for example, often find themselves in neighborhoods with limited social and economic opportunities and attend failing schools (Anyon, 2005; Suárez-Orozco et al., 2010). Navigating the balance between new cultural expectations and developing competence in family cultural practices eases the transition and is vital to school achievements (Vedder, Boakaerts, & Seegers, 2005).

Traumatic Stress. The process of immigration may involve traumatic events. Relative to economic, political, and social adversity and the psychosocial toll of crossing borders, traumatic stress refers to the various events that cause traumatic stress-related symptoms and disorders such as PTSD and depression (Birman, Weinstein, Chan, & Beehler, 2007). Consequently, students may experience behavioral

and cognitive difficulties (e.g., grief, anxiety, guilt, memory problems, and hyper-arousal), which further impede their social and educational adaptation and success (Birman et al., 2007; Suárez-Orozco et al., 2010).

While it is important for service providers to be familiar with negative consequences of immigration stress, it is just as important for them to be attuned to strengths (e.g., resiliency and motivation to excel academically and to learn new languages and cultural practices) that immigrant youth bring to schools. Awareness of such strengths allows for appropriate responses to immigrant youth's academic and behavior needs. Immigrant students' individual strengths and challenges cannot be fully understood and addressed at only the individual level. These individual strengths and challenges should be studied as located within and among larger social and educational contexts that immigrant youth find in a host country (Arzubiaga et al., 2009; Bal & Arzubiaga, 2013).

What Immigrant Students Find in Schools

Schools are usually the first social and institutional spaces in which immigrant youth engage in cultural adaptation. Access to education and ensuing academic achievement are viewed as the most important indicators for adaptation and later success by policy makers and immigrant families (Arzubiaga et al., 2009). Indeed, immigrant families highly value formal education (Portes & Rumbaut, 2006). However, immigrant children are most often educated in under-resourced urban schools, which are not equipped to provide them with adequate academic and behavioral programs (Blanchett, Klingner, & Harry, 2009). Large urban schools, in which minority and immigrant students are overrepresented, are characterized by unsatisfactory conditions such as low educational and financial resources, high rates of teacher turnover, limited native language support, unchallenging curriculum, and minimal school-family collaboration (Artiles & Ortiz, 2002; Blanchett et al., 2009; Portes & Rumbaut, 2006). Ruiz-de-Velasco, Fix, and Clewell (2000) found that less than 3% of K-12 teachers who have immigrant students and the students identified as English Language Learners (ELLs) in their classrooms are prepared to work with those students. Moreover, schools can represent socially hostile environments for immigrant youth. For example, non-immigrant students and teachers may perceive immigrant youth as having no place in the public school system and as abusive to public services such as education and health care (Mendieta, 2006). In short, U.S. schools offer to immigrant youth a disabling academic context dismantled via cultural dissonance, deficit-oriented perspectives,

and an unwelcoming social climate (Portes & Rumbaut, 2006; Suárez-Orozco et al., 2010).

As a population among the most stigmatized, when disability is a variable embedded within the educational and social contexts of immigrant students, this group often experiences further marginalization. Immigrant students with disabilities have an even greater need for academic and behavioral support programs (Suárez-Orozco et al., 2010). The special education referral process and ensuing provision of adequate interventions are often difficult due to school professionals' potential unfamiliarity with immigration stress and second language development (Artiles & Ortiz, 2002). Furthermore, immigrant students who are identified for special education are less likely to receive language services (Artiles & Ortiz, 2002).

Schools must respond to immigrant students' psychological, social, and academic needs as well as foster strengths for this population in order to encourage positive educational outcomes. Research-based special education interventions can help immigrant children and adolescents cope with immigration stress as well as facilitate the acquisition of critical social and cognitive skills during resettlement (Sinclair, 2001). While a strong research-base on experiences of immigrant youth exists, we know little about effective school-based interventions for immigrant students (Arzubiaga et al., 2009; Birman et al., 2007). It is critical for practitioners to use effective and socially and ecologically valid interventions through high quality research studies. The field of special education research developed the quality indicators and standards for operationalizing rigor in research methodologies, tethering ongoing problems to a lack of a strong empirical knowledge base (Odom et al., 2005). In the field of EBD, scholars used the quality indicators and standards to determine the extent to which a behavioral and academic intervention for students with behavioral difficulties may be considered an evidence-based practice. For example, Lane, Kalberg, and Shepcaro (2009) applied the quality indicators developed by Horner et al. (2005) for single-subject studies to function-based interventions. Their review revealed 12 empirical studies and only one of those studies was determined as having acceptable methodological quality (Horner et al., 2005).

The purpose of the present systematic literature review was twofold: to identify the international knowledge base of academic and behavioral interventions for immigrant students experiencing behavioral difficulties and to determine whether these interventions may be considered evidence-based according to the proposed quality indicators for single-subject and experimental and quasi-experimental studies (Gersten et al., 2005; Horner et al., 2005). More specifically,

we addressed the following questions: (1) What is the current international research literature on school-based academic and behavioral interventions for immigrant students who have disabilities or are experiencing academic and behavioral difficulties; and (2) What is the methodological quality of the identified intervention studies.

Method

Preliminary Selection

The first phase of this review was a search for the intervention studies in peer-reviewed journals. We included five electronic databases: PsycINFO, ERIC, Education Full-Text, Family and Society, and Google Scholar. The next step was to establish search terms that were most likely to yield the targeted literature base. To that end, four levels of identifiers were employed in the following combination: Level 1 (*immigrant* or refugee* or migrant* or foreign* or bilingual* or Latin* or Hispanic* or African* or Asian* or multilingual**) AND Level 2 (*student* or child* or youth* or individual* or teen* or adolescent* or elementary* or infants* or learner* or secondary* or young adult**) AND Level 3 (*intervention* or program* or services* or treatment* or therapy* or rehabilitation* or education* or instruction* or normalization* or prevention* or special education* or support* or treatment**) AND Level 4 (*learning disability* or LD or SLD or learning difficult* or learning problem* or reading disability* or writing disability* or math disability* or emotional or behavioral disorder* or BD or EBD or E/BD or behavioral disorder* or mental illness* or mental disorder* or psychopatholog* or psychiatric disorder* or psychological disorder* or psychopath* or disorder**). We also conducted a backward search and reviewed citation lists in published literature searched. The database and backward search procedures revealed 3598 articles. Next, we examined abstracts or contents of each article against five selection criteria.

Criteria-based Selection

For the second phase of the systematic review, we established five selection criteria. We selected research articles if they: (a) reported data from empirical academic and/or behavioral intervention studies using experimental, quasi-experimental, and single subject designs; (b) were published in English in peer-reviewed journals between the years of 1975 - the enactment of the *Individuals with Disabilities Education Act (IDEA)* and 2010; (c) included immigrant students as participants; (d) reported disaggregated data by immigration status if both immigrant and nonimmigrants students participated in the study; and (e) were conducted in the United States. Initially, the criteria-based

selection process yielded only three intervention studies. We changed our (e) criteria to include international research. This increased our total from three to six intervention studies (see Table 1 for detailed information about the studies).

Quality Indicators

To assess methodological rigor, we used two rubrics: (1) quality indicators of experimental and quasi-experimental research; and (2) quality indicators of single-subject research. Both rubrics are 4-point Likert scales. Chard, Ketterlin-Geller, Baker, Doabler and Apichatabutra (2009) developed the rubrics based on the quality indicators for special education research (Gersten et al., 2005; Horner et al., 2005). Chard et al. (2009) applied the rubrics to repeated reading interventions for students with learning disabilities.

Experimental and quasi-experimental research rubric. This rubric consists of 10 rate-able items organized in four categories: 1) Description of participants; 2) Description and implementation of intervention and comparison conditions; 3) Outcome measures; and 4) Data analysis (Chard et al., 2009). Each category requires an average rating of at least 3 points among all rate-able items in that category to meet the minimum requirements of acceptable quality. No item may receive a rating of "1", regardless of the eventual main category average, for a study to be considered acceptable. The total cut off score for demonstrating methodological quality was 30/40 (Chard et al., 2009).

Single-subject research design rubric. This rubric consists of 21 rate-able items organized within seven main categories to which the single identified single-subject research design study was rated: 1) Participants and settings; 2) Dependent variable; 3) Independent variable; 4) Baseline; 5) Experimental control and internal validity; 6) External validity; and 7) Social validity (Chard et al., 2009). Each main category must have an average rating of at least 3 points among all items in order to meet the minimum requirements of acceptable quality. The cut off score for demonstrating methodological quality was 63/84 (Chard et al., 2009).

Reliability

We, both authors, independently evaluated each study against the appropriate rubric and assigned each category subitem a value 1-4. Each rater then computed a total score for each study combining each category total. To test inter-rater reliability, we abided by Chard et al.'s (2009) method: "Inter-rater reliability was calculated by dividing the number of exact matches on ratings at the component level by the total number of exact matches and disagreements" (p. 273). The

Table 1
Summary of Intervention Studies for Immigrant Students

Study	Purpose	Participants & Setting	Intervention	Design	Dependent Variable(s)	Country	Results
Ceballos & Bratton, 2010	Investigates the effect of Child Parent Relationship Therapy (CPRT) on student behavior problems and family stress levels	Low-income, Mexican, South American, and Central American immigrant parents of pre-k students in Southwestern United States	CPRT; An emotional bonding intervention	Experimental pre-test, post-test control group design	Child Behavior Checklist – Spanish version (CBCL; Achenbach & Rescorla, 2000) ratings for externalizing, internalizing and total problems; Parent Stress Index (PSI; Abidin, 1995)	United States	Significant decrease in children's behavior problems and significant decrease in parent-child stress
Kataoka et al., 2003	Pilot-tests a school-based mental health intervention, Mental Health for Immigrants Program (MHIP), for immigrant students exposed to violence	Mexican and Central American immigrant students from Los Angeles (CA, USA) school district	MHIP; addresses multiple avenues of mental health needs	Quasi-experimental design	Child Post-Traumatic Symptom Scale (CPSS; Foa et al. 1997) and Children's Depression Inventory (CDI; Kovacs, 1992)	United States	Decrease in depressive and post-traumatic symptoms indicated by CPSS and CDI scores

Table 1 (continued)

Study	Purpose	Participants & Setting	Intervention	Design	Dependent Variable(s)	Country	Results
Kozulin, 2006	Tests a cognitive intervention, Concentrated Reinforcement Lessons (CoRel) for integrating immigrant students into inclusive classrooms	Ethiopian, Transcaucasian, Central American, and Israeli students of low socioeconomic status from four primary schools in Israel	CoRel; language arts and math focus based on principles of mediated learning	Pre-test, post-test group evaluation study	Raven Colored Matrices post test score, post reading comprehension test score, post math ability test score	Israel	Significant effect of the CoRel intervention on students' cognitive functioning, reading comprehension, and math ability
Ogden et al., 2007	Examines a school-wide behavior intervention, Positive Behavior Interaction and Learning Environments in School (PALS) aimed at reducing and preventing problem behavior among immigrant students	Pakistani, Indian, and Eastern European immigrant students from elementary schools in Norway	PALS	Quasi-experimental group design; pre-test, intervention, post-test; evaluation study	Multiple forms of Social Skills Rating System (SSRS; Gresham & Elliott, 1990)	Norway	Teachers rated immigrant students with increased social competence, decreased internalizing behavior problems; no change in externalizing behavioral problems, marginally significant change in academic competence; no intervention effect on student-rated social competence

Table 1 (continued)

Study	Purpose	Participants & Setting	Intervention	Design	Dependent Variable(s)	Country	Results
Rousseau et al., 2007	Evaluates a school-based drama therapy program for immigrant students for improving school performance while preventing emotional and behavioral problems	Asian, Eastern European, South American, Middle Eastern and African immigrant students from a multiethnic high school in Montreal, Canada	Classroom drama therapy program	Pre-test, post-test control group experimental design with multiple measures	Strengths and Difficulties Questionnaire (SDQ; Goodman, 1999); Self-Esteem Scale (SES; Rosenberg, 1965); academic report card	Canada	Students experienced a decrease in emotional or behavioral problem symptoms and an increase in math achievement; the intervention did not have a statistically significant effect on self-esteem
Vargas et al., 1997	Tests an error correction spelling strategy for increasing migrant students' English and Spanish spelling competency	Migrant students in a summer school bilingual program in the Northwestern United States	Error correction strategy for improving migrant students' spelling competency	Single-subject design	Number of words correctly spelled on both the first day and next day spelling tests; total percentage of words spelled correctly; student satisfaction questionnaire	United States	Increase in English word spelling proficiency; no change in Spanish word spelling proficiency; students enjoyed the error correction strategy more so than the traditional strategy (control condition)

study totals assigned by each rater were compared to the other rater's scores and averaged across all articles. Initially, we had an average of .67 inter-rater reliability. Then, we employed a correction procedure and discussed our individual ratings for each article until we reached a mutual (100%) agreement.

Results

The aim of this literature review was to synthesize high quality research evidence relevant to interventions for immigrant students. We identified six studies that satisfied our inclusion criteria. Of the identified studies, two are academic interventions while four are behavioral interventions. Next, we report descriptive information and quality indicator scores.

Descriptive Information

The interventions in this review bring forth various academic and behavioral qualities and foci: Four studies addressed behavior concerns while two addressed areas of academic proficiency (see Table 1). The authors of each study operationalized the term "immigrant" to represent an individual living in and receiving educational services in a country in which they were not born. A variety of ethnic backgrounds were represented across the studies. Three intervention studies were conducted in the United States and one each in Norway, Israel, and Canada. Four studies appeared in psychology and psychiatry -concentrated journals and two in behavior education journals. Though we searched for studies in the published year range of 1975 to 2010, the identified studies were published between 1997 and 2010.

Academic interventions. Two studies focused on interventions that aimed to improve immigrant students' academic performance. In the first study, Kozulin (2006) examined the effectiveness of an academic intervention-based on principles of mediated learning-Concentrated Reinforcement Lessons (CoReL). The intervention aimed at helping immigrant students' transition into inclusive classrooms by improving students' mathematics and reading comprehension. CoReL uses the culturally sensitive principles of mediated learning and integrates cognitive functioning and domain-specific learning skills in small groups under intensive supervision (Kozulin, 2006). This quasi-experimental study was conducted in Israel. A total of 51 students from low-income families, aged 9-10, and across four primary schools participated in the study. The intervention was classroom-based and implemented by content area teachers, and conducted over an academic school year. The study had three dependent variables:

(1) Raven Colored Matrices (RCM) post-test score, (2) Post-test reading comprehension score, and (3) post-test math score. Results indicated a significant effect of CoReL on immigrant students' cognitive functioning, reading comprehension, and math proficiency (Kozulin, 2006).

In the second academic intervention, Vargas, Grskovic, Belfiore, and Halbert-Ayala (1997) used single-subject study design. They examined a written language error correction strategy that aimed at increasing eight bilingual immigrant students' spelling proficiency in students' native language, Spanish (L1), and English (L2). Participants were involved in a summer school bilingual migrant education program in the Northwest United States. One of the participants was identified as having a specific learning disability (LD). The intervention—the error correction condition—involved a spelling strategy in which students spelled a vocabulary word, viewed the correct spelling of the word, and immediately corrected any applicable errors for three weeks, five times per week. The experimental condition facilitated immigrant students' active participation in writing and self-correcting spelling mistakes. In the traditional condition on spelling accuracy, students were to write a list of words three times on lined spelling practice sheets. There were three dependent variables: (1) number of words correctly spelled on both the first day and next day spelling tests; (2) total percentage of words spelled correctly; and (3) student satisfaction questionnaire. Results indicated an increase in L2 word spelling proficiency for students with and without LD, while no change in L1 word spelling proficiency compared to the traditional condition (Vargas et al., 1997). Of note, students reported increased engagement with the error correction strategy (Vargas et al., 1997).

Behavioral interventions. The remaining four articles reported experimental and quasi-experimental studies that examined school-based behavioral interventions. In the first study, Kataoka et al. (2003) studied the implementation of Mental Health for Immigrants Program (MHIP), a school-based cognitive behavioral therapy-oriented mental health intervention. The purpose of the intervention was to reduce PTSD and depression symptoms in immigrant students who had been exposed to community violence (e.g., threat, beating, and shooting). A total of 229 immigrant students from grades 3-8 participated in this study. They attended public schools in low-income areas of Los Angeles. All participants were identified having clinical levels of PTSD and one third of them had comorbid PTSD and depression. One hundred fifty two (152) immigrant students were in the intervention condition and 46 students on a waitlist. MHIP is a form of cognitive behavior

therapy and addressed multiple avenues of mental health needs related to trauma and depression (Kataoka et al., 2003). There were two dependent variables for gauging intervention effectiveness: (1) Child Post Traumatic Symptom Scale (CPSS) and, (2) Children's Depression Inventory (CDI). The intervention resulted in a decrease in PTSD and depression symptoms (Kataoka et al., 2003).

Ceballos and Bratton (2010) investigated the effects of a parent-child intervention, Child Parent Relationship Therapy (CPRT), on school behavior problems for immigrant Latino students with academic difficulties and stress levels for Latino families. CPRT is a school-based intervention with further intervention for parents to implement at home. The intervention aimed at strengthening the parent-child bond and thus relieving family stressors influencing students' behavior difficulties (Ceballos & Bratton, 2010). A total of 48 low-income immigrant parents of pre-K students participated: 24 each in the intervention and control groups. Participants were from two suburban school districts in the Southwestern United States. There were two dependent variables: (1) Child Behavior Checklist – Spanish Version (CBCL) ratings for externalizing and internalizing problems and (2) the Parents Stress Index (PSI). Parents in the intervention group reported a significant decrease in their children's behavior problems following the intervention as well as a significant decrease in total parent-child stress (Ceballos & Bratton, 2010). Anecdotal data indicated that there were also conspicuous positive changes in immigrant students' classroom behaviors (Ceballos & Bratton, 2010).

Ogden et al. (2007) examined a school-wide behavioral intervention, Positive Behavior Interaction and Learning Environment in School (PALS), an elaborated version of school-wide PBIS in Norway. The intervention aimed at reducing and preventing problem behaviors through promotion of social competence (Ogden et al., 2007). Forty-nine immigrant students in grades 3-7 from a total of 735 students participated in this study. Eight elementary schools, four as experimental settings and the remaining as control settings served as locales for the research. Thirty-seven immigrant students attended the PALS schools and 12 attended the comparison schools. There were four dependent variables: (1) Social Skill Rating System (SSRS) teacher ratings of problem behavior, (2) SSRS teacher rated social competence, (3) SSRS student rated social competence, and (4) teacher rated academic competence. Teachers rated observable decrease in internalizing behavior problems and increase in social and academic competence in the experimental group (Ogden et al., 2007). On the other hand, teacher ratings reported no change in externalizing behavior problems (Ogden et al., 2007).

In the final behavioral intervention study, Rousseau et al. (2007) examined a school-based drama therapy program for immigrant students. The program aimed at preventing emotional and behavioral problems while subsequently improving school achievement. Participants were 123 immigrant students aged 12-18 situated in a multiethnic high school in Montreal, Canada. This study employed an experimental design with three dependent variables: (1) Strengths and Difficulties Questionnaire (SDQ); (2) Self-Esteem Scale (SES); and (3) academic performance measured by last report card of the school year. The intervention decreased the interference of behavioral problem symptoms with participants' social activities and interactions (Rousseau et al., 2007). Moreover, the intervention decreased the experimental groups' perception of social impairment. As for the academic performance, the intervention resulted in an increase in math achievement (Rousseau et al., 2007). However, the intervention did not have a statistically significant effect on self-esteem (Rousseau et al., 2007). Researchers found a significant gender difference: The therapy decreased social impairment in female participants while it prevented its increase in male participants (Rousseau et al., 2007). In addition, male students in the experimental condition showed more significant gain in mathematics and in French (Rousseau et al., 2007).

Quality Indicator Scores

Single-subject research study. We applied the quality indicator rubric for single-subject research (Chard et al., 2009) to Vargas et al.'s (1997) study. We evaluated each item within the seven main categories of the rubric. In Participants and Setting category, a 7 of possible 12 was rated; a score of 9 was needed for this category to meet criteria for acceptability. In the Dependent Variable category, this study received a 19 of possible 20 rating and met criteria for acceptability. In the Independent Variable category, a score of 9 of possible 12 rating is required for acceptability; a score of 8 was awarded and as such did not meet the minimal rating criteria. In Baseline, this study received a 4 of possible 8 rating. There was no pre-intervention baseline, which does not meet minimal acceptability criteria. In Experimental Control and Internal Validity, the study received an 8 score. A minimum rating of 12 was needed to meet acceptability. In External Validity, there was no described effort of effect replication across multiple participants, settings, or materials. The final category, Social Validity, was rated 8 from a possible 12 and thus failed to meet the minimum criteria for acceptable quality.

Vargas et al.'s (1997) study received an overall score 55 from a total of 84 possible ranking points (see Table 2 for average rating

scores for the selected studies). A minimum score of 63 is required for a single-subject study to demonstrate acceptable methodological quality (Chard et al., 2009). Thus, this study does not meet acceptable quality standards.

Experimental and quasi-experimental research studies. The experimental and quasi-experimental research design rubric (Chard et al., 2009) was applied to the remaining five identified interventions. First, we analyzed each article for comprehensive description of participants, including information of disability or academic and behavioral problems, whether the samples are comparable across conditions when considering relevant characteristics, description of interventionists, and comparability across research conditions. From a possible score of 12, the average study score in this area was a 7.8 rating. Two studies (Ceballos & Bratton, 2010; Kataoka et al., 2003) met the criteria expectations for acceptable participant description while the remaining three studies failed to do so. Then, we looked for description of the intervention and steps for implementation and articulation of comparison conditions. For this area, we reviewed each article for clear description of the intervention and implementation procedures, described fidelity of these procedures, and clear description of activities of which the control conditions were engaged. One study (Ogden, et al., 2007) received high enough rating (10) to qualify as acceptable in this area while the remaining four did not. Of a possible 12 score, the average across five studies was a 6.8 rating. Next, we analyzed each article for outcome measures by looking for frequency and number of measures used to consider the effect on the dependent variable and whether these measures were appropriate for generalized performance. Also, we considered the appropriateness of data collection times. All five studies met criteria for acceptable quality in this area. The average score was 7.8 from a possible 8 rating. Our last area of concern was the process of data collection. We were interested in the appropriateness with which the data analysis was linked to the research question of each study and the procedures for intervention. Additionally, we looked for report and accurate interpretation of effect sizes. Again, all five studies were awarded ratings that qualified them to meet acceptable standards. The average score across the five was 7.8 from a possible 8 rating.

Overall, three of the five studies (Ceballos & Bratton, 2010; Kataoka et al., 2003; Ogden et al., 2007) met total criteria for acceptable methodological quality by averaging a rating of 3 or higher across all rubric components (Chard et al., 2009) (Table 2).

Table 2
Average Rating Scores for Intervention Studies

Study	Quality Indicator Score
Ceballos & Bratton, 2010	32/40
Kataoka et al., 2003	34/40
Kozulin, 2006	24/40
Rousseau et al., 2007	29/40
Ogden et al., 2007	32/40
Vargas et al., 1997*	55/84

*To evaluate Vargas et al. (1997), we used Chard et al.'s (2009) credibility rubric for single subject studies.

Discussion

Descriptive Information

In this systematic review of the literature, we provided a synthesis of international empirical studies published in English that examined the implementation of academic and behavioral interventions for immigrant students. Of the six studies evaluated against the quality indicators for special education research (Chard et al., 2009; Gersten et al., 2005; Horner et al., 2005), three (50%) received ratings that meet criteria for methodological rigor. Our findings indicate publication of only a small number of evidence-based interventions with acceptable empirical quality for immigrant students with disabilities or academic and behavioral challenges. This underscores an urgent need for a research agenda addressing diverse needs, strengths, and interests of immigrant students in the field of EBD and special education in general.

In the United States, immigrant students are outgrowing all other student populations (Capps et al., 2005), yet we identified only three empirical research studies that have been conducted in the United States since 1975. In addition, the earliest study was published in 1997, indicating empirical attention in this area is recent. The three studies, which met criteria for empirical quality, were published after 2002, which represents an even more recent attention to immigrant students and rigorous intervention research. Based on prior work on the education of immigrant students (e.g., Suárez-Orozco et al., 2010), we were expecting to find a small body of academic and behavioral intervention studies targeting immigrant students in the United States.

However, the paucity of intervention studies with high empirical quality is alarming.

We identified twice as many behavioral intervention studies ($N = 4$) as academic intervention studies ($N = 2$). Of the studies conducted in the United States, two focused on addressing behavior problems while the remaining study was an academic intervention. Two of the international studies focused on behavior while the remaining study aimed toward academic improvement. Two of the U.S. studies met acceptable rigor standards while one international study did so. We were unable to locate intervention studies specific to immigrant students with academic and behavioral challenges published in journals of special education and behavioral disorders, a seemingly appropriate outlet. The majority of identified studies were published in psychology and psychiatry-related journals while only two studies appeared in education journals. This is a noteworthy finding as IDEA and the current service delivery and identification models in special education, namely RTI and PBIS, rely on the use of evidence-based interventions to provide adequate and timely intervention and reliable identification of students with EBD and other disabilities (Sugai & Horner, 2009).

Individual and Structural Factors

The majority of the intervention studies that we reviewed did not adequately attend to the interplay of individual and structural factors influencing immigrant students' educational experiences and outcomes. The unit of analysis in the majority of those studies was individual challenges that immigrant youth experienced except Ceballos and Bratton (2010). Ceballos and Bratton's study focused on improving parent-child relationship via a culturally responsive implementation of CPRT, a strength-based behavioral intervention program (Ceballos & Bratton, 2010).

Both academic intervention studies (Kozulin, 2006; Vargas et al., 1997) aimed to improve language and/or literacy skills of immigrant students. The academic interventions addressed language acquisition in order to increase immigrant students' oral and written language skills for classroom literacies. Language acquisition is a sociocultural process. A focus on academic intervention is specifically relevant for immigrant students learning English considering as language barriers and lack of native language support in schools predict low overall educational attainment, social difficulties and overrepresentation in special education programs (Artiles & Ortiz, 2002). In U.S. schools, non-dominant family cultural practices (e.g., a language other than English) are often disregarded or actively discouraged (Compton-Lil-

ly, 2007). Thus, “right” and “wrong” ways of demonstrating cultural identity and academic competence through various uses of language are established. It is important the repercussions of teaching literacy in conjunction with a *valued* language in the local social interactional context are considered.

Vargas et al. (1997) reported that immigrant students practice written language skills (e.g., spelling) in both English and their native language, Spanish, thus removing the valued or devalued quality of languages in that context. Rather, such intervention places worth on acts of literacy regardless of the language, which serves as its vehicle. It should be noted spelling, as an independent skill and language focus, reinforces the connection between letters and sounds; an integral quality of acquiring academic literacy, regardless of specific vernacular or dialect. While Vargas et al. (1997) did not meet methodological rigor standards for empirical research, we are encouraged that their literacy intervention considered the valued and devalued languages in the specific school context of the intervention.

In terms of behavioral interventions, Kataoka et al. (2003) and Rousseau et al. (2007) addressed traumatic stress and trauma-related behavioral disorders (PTSD and depression) that are encountered by many immigrant youth during the immigration process (Birman, 2002). As a psychological experience, it can be aggravated or alleviated by the resettlement context in which immigrant students arrive. Traumatic stress and related behavioral disorders significantly alter students’ individual, social, and academic development. Ogden and colleagues’ (2007) study addressed an acculturative stress, the social relationship challenges encountered by immigrant students entering new cultural environments. Their intervention reduced behavior difficulties by improving social competence. Immigrant students arrive in resettlement countries with diverse cultural practices, values, norms, languages, and histories. Depending on the culture of the school, larger community, and the attitudes toward immigrant students, the interpersonal relationships of immigrant students hinges on the intersection of what they bring to U.S. schools and what they find there. Increased social skills can act as protective factors against inappropriate student behaviors. Addressing behavior difficulties that may result from negative social relationship experiences with teachers and peers by strengthening social competence is especially relevant in the resettlement schools where behavioral difficulties are responded to by punitive and exclusionary discipline (e.g., expulsion and suspension).

Grounded in the understanding that therapeutic child-parent relationships facilitate prosocial growth for the family as well as the student, in the last behavioral intervention study, Ceballos and Brat-

ton (2010) addressed the multiple dimensions of familial stress. This is important for the process of immigration can put tremendous pressure on the stability of immigrant families. Many families encounter strain with their day-to-day family relationships. However, typical family stress coupled with specific resettlement stressors related to immigration (e.g., limited economic opportunities and social rejection) may increase the immigration stress. This has educational consequences for immigrant students and their teachers. Those include disruptive behavior, truancy, and reduced academic achievements (Suárez-Orozco & Suárez-Orozco, 2002). Hence, reductions in home stress through strengthening family relationships may stimulate appropriate school behaviors and academic success.

Limitations

During the search process, we identified studies that used the term *immigrant* in conjunction with the terms ELL. In these studies, immigrants were grouped together with participants identified as ELLs or attending English as a Second Language (ESL) classes and results were not disaggregated by newly arrived immigrant status. Had we included these studies, a much larger research base may have been evaluated. However, when these terms are used interchangeably, readers may lose sight of the intended population and can confound the purpose of the practice and research. Furthermore, students from non-dominant linguistic background who are not immigrants might be identified as ELLs or placed in ESL programs (Bal & Arzubiaga, 2013). Additionally, while we identified six empirical studies, only three were rated as having methodological rigor. Therefore what practitioners can adopt from this review may be limited in scope. In the following section, we call attention to the practical significance of this review to the field of EBD by underscoring components of the studies that received acceptable ratings.

Implications for Practice and Future Research

Immigrant students experiencing behavioral difficulties have particular relevance for practitioners, researchers, and other stakeholders concerned with the intersection of cultural and social contexts and disability. The low number of quality research in this area highlights a critical need for further empirical attention to school-based interventions in the field of EBD for immigrant students presenting academic and behavioral difficulties. Although limited due to the low identification of rigorous studies, this review can inform future direction and the local implementation of school-based interventions for immigrant youth. We recommend researchers and practitioners work-

ing with immigrant students with behavioral difficulties consider the three behavioral interventions (Ceballos & Bratton, 2010; Kataoka et al., 2003; Ogden et al., 2007) found to be effective and of acceptable quality. The three acceptable studies share similarities: They employed quasi-experimental design, relied upon extensive training for the implementation of intervention, and gauged effectiveness through multiple assessment tools. We encourage researchers working with students with EBD to conduct replication studies to examine the effectiveness of the interventions we identified in this review across multiple settings and immigrant groups. EBD researchers should use high quality and innovative research designs including but not limited to randomized multigroup design and mixed methods intervention studies integrating quasi-experimental design with critical ethnographies (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005; Gersten et al., 2005).

Immigration literature shows academic and behavioral difficulties that young immigrants experience and pre- and post-immigration factors (e.g., trauma) may result in low scholastic achievement (Suárez-Orozco et al., 2010). Indeed, immigrant students exposed to traumatic stress who do not receive appropriate mental health services are more likely to dropout (Porshe, Fortuna, Lin, & Alegria, 2011). Interventions that take into consideration school and social factors have evidence on which to frame learning programs designed to increase academic performance while decreasing behavioral problems (Birman et al., 2007). Practitioners working with immigrant students with EBD should consider cultural responsiveness of the interventions and address the complexities of their local institutional and social contexts (e.g., school climate, quality of learning opportunities, native language support, psychosocial services, and perceptions toward immigrants) as well as cultural and linguistic practices, experiences, and goals of immigrant students and families (Cartledge & Lo, 2006; Harry et al., 2008; Sugai, O’Keeffe, & Fallon, 2012).

School-based interventions through careful remediation of school and family context that embrace the instrumental role of culture and learning histories of immigrant students are more effective, sustainable, and culturally responsive (Bal, 2011; Cartledge & Lo, 2006; Ladson-Billings, 1994; Sugai et al., 2012). Interventions must be carefully designed and compressively consider the interacting personal and structural factors identified and informed by high quality research. Interventions should be grounded in strength-based approaches so that diverse linguistic and cultural practices immigrant youth bring to schools are not seen as deficits but educational resources for immigrant students and their schoolmates (Artiles & Or-

tiz, 2002; Artiles & Bal, 2008). Culturally responsive evidence-based interventions can nurture immigrant students' cultural identities and adaptation while providing expansive learning opportunities for developing key academic and social skills in a safe, welcoming, and inclusive school climate.

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