Review article

Inclusion of children with developmental disabilities in Arab countries: A review of the research literature from 1990 to 2014

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A R T I C L E I N F O

A B S T R A C T

Background: In this study, a literature review was conducted to analyze studies published from 1990 to 2014 in English-written literature on inclusion of children with developmental disabilities in Arab countries.
Aims: This study sought to review and analyze research conducted on Inclusive Education (IE) in Arab countries.
Methods and procedures: The following electronic databases were used in searching the relevant literature: ScienceDirect, SpringerLink, PsychINFO, EBSCOhost Databases, ProQuest Dissertations and Theses Database, ERIC, and Google Scholar. After the publications to be included in this study were retrieved, each study was reviewed and analyzed. Each study was examined for details such as authors, title of research, publication year, country, purpose, methods, and key findings.
Outcomes and results: The results showed that a total of 42 empirical studies related to inclusion of children with developmental disabilities in Arab countries have been published. More than two-thirds of these studies came from United Arab Emirates (UAE), Jordan, and Saudi Arabia. The majority of the studies were published in the last 6 years. The main parameters in these studies were: attitudes toward inclusion, barriers to inclusion, and evaluating inclusion.
Conclusions and implications: The results of the current study revealed that relatively little IE research has been conducted in Arab countries. More research is warranted to test the generalizability of the results of the current study. Further research is also needed to analyze IE practices and demonstrate strategies for the effective implementation of IE in these countries.

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Inclusion of children with developmental disabilities in mainstream educational settings has been endorsed internationally through legislation and encouraged by research over the past two decades (Lindsay, 2007; MacFarlane & Woolfson, 2013; Odom & Diamond, 1998; Sharma, Forlin, & Loreman, 2008). After decades of exclusion of children with developmental disabilities from mainstream regular schools, Arab countries, like many developing countries, have recently joined the global movement toward more inclusive education (IE) for these children (Gaad, 2010). Yet, despite policies encouraging IE and the proliferation of full inclusion rhetoric in these countries, the practical translation of this policy and rhetoric into real inclusive practice at the classroom level remains a formidable challenge. In some Arab countries, IE was introduced more than two decades ago as pilot projects involving a small number of schools in countries like Jordan, UAE, Saudi Arabia, and Egypt. The majority of those projects focused on providing remedial and special education services in resource rooms in regular schools.

Since the late nineties, a broader view of IE began to find its way to more countries in the region (Gaad, 2010; Weber, 2012). Recently, ministries of education in most Arab countries began adopting policies and guidelines for implementing IE. The four most influential forces behind the movement of Arab countries toward more inclusive schools were: the UNESCO World Declaration on Education for All (EFA) in 1990, the Salamanca Statement and Framework for Action on Special Needs Education in 1994, the Convention on the Rights of Persons with Disabilities that was adopted in 2006, and international literature on IE particularly Western journals and other publications. However, Arab education policy makers, special education professionals, researchers, and parents have not yet reached consensus on the definition, nature, and extent of IE (Anati, 2012; Weber, 2012). IE, as perceived and practiced in Arab countries, may not necessarily have the same meanings and contexts as IE described in the international literature (Aldaihani, 2011; Almuhareb, 2007). The terms "normalization", "integration", "mainstreaming", "least restrictive environment", and "inclusion" are still used interchangeably in the Arab region. There is no uniform or clear definition of IE that is commonly used across Arab countries; definitions used are rather general or inconsistent. While some Arab policy makers and educators define IE as a strategy to ensure education for all, others perceive it as teaching all children with disabilities in regular classrooms, or more commonly as educating only children with certain types of disabilities in ordinary school settings (Alghazo & Gaad, 2004; Gaad, 2001; Weber, 2012). Thus, although Arab special educators tend to use the term *inclusion* and the educational jargon associated with it, the current researchers assert that Arab countries are struggling to educate a progressively increasing number of children with mild disabilities in a "less restrictive" rather than a "least restrictive" learning environment.

Despite progress made in educating children with developmental disabilities in recent years in Arab countries (Gaad, 2010), these countries, like most developing countries, are still facing challenges in reforming their educational systems and transforming them into inclusive systems (World Health Organization, 2011). Even today, the vast majority of children with developmental disabilities in these countries are not receiving an education appropriate to their needs or are receiving no education at all. Very large numbers of children continue to be excluded from education, whether it is inclusive or segregated. Reasons for exclusion are complex and varied but are generally based on disability stigma; widespread negative perception and beliefs; poverty; and lack of access to education, particularly in rural regions (Peters, 2009). The majority of public schools in Arab countries remain unwilling and poorly prepared to provide educational services to children with disabilities.

Attempting to explore and survey the literature on inclusion of children with developmental disabilities in Arab countries is a daunting task. For one thing, there are 22 Arab countries with a combined population of around 370 million people (World Bank, 2014). Although these countries have many similar features, they still vary tremendously in terms of their political, ethnic, economic, social, and religious characteristics. In addition, there are substantial variations in the educational systems in these countries (El-Berr & El-Mikawy, 2004). Moreover, a lack of accurate and updated data on disability and special education and related services remains one of the most critical challenges facing the region (Al Thani, 2006; Gharaibeh, 2009). Similarly, there is an absence of reliable data and accurate statistics in the region on IE (Weber, 2012). Finally, researchers meet tremendous challenges in surveying the literature written in the Arabic language due to the scarcity of accurate databases providing online access. Many research reports in the region are paper-based with no online versions.

Like many other developing countries, there is lack of information and research-based data on inclusion in Arab countries (Crabtree & Williams, 2013). Accordingly, this study sought to review and analyze research conducted on IE in Arab countries. The methodology used in this study is described below followed by the main findings. The study concludes with a discussion and the implications of the findings.

1. Methods

For this study, *developmental disabilities* were defined as physical, intellectual, learning, behavioral, or language impairments that occur before a person is 22 years of age and include conditions such as intellectual disabilities, autism

spectrum disorders, Down syndrome, language and learning disorders, vision and hearing impairments (Boyle, Boulet, et al., 2011; Dyches, Prater, & Leininger, 2009). *IE* was defined as teaching children with developmental disabilities alongside their typically developing peers in regular schools. The following electronic databases were used in searching the relevant literature published in English: ScienceDirect, SpringerLink, PsychINFO, EBSCOhost Databases, ProQuest Dissertations and Theses Database, ERIC, and Google Scholar. In addition, reference lists of identified articles were searched in order to find additional articles. Search words used were: "inclusion", "integration", "mainstreaming", "special education", "disability", "Arab countries", "Algeria", "Bahrain", "Egypt", "Libya", "Tunisia", "Morocco", "Mauritania", "Sudan", "Somalia", "Djibouti", "Lebanon", "Jordan", "Gaza", "Syria", "Iraq", "Qatar", "Emirates", "Oman", "Yemen", "Saudi Arabia", "Kuwait".

Studies were included if they were doctoral dissertations/master theses or papers published in a peer-reviewed journal, addressed one or more aspects of IE for children with developmental disabilities in an Arab country, published from 1990 to 2014, and a comprehensive abstract or full text of the article was available. Only empirical studies were included and other types of publications, such as literature reviews, policy papers, chapters, and studies on segregated special education were excluded.

After the list of publications to be included in this study was prepared, the researchers screened all references together. When in doubt about whether an article might meet the inclusion criteria, the researchers discussed it and reached a consensus. Next, each study which met the inclusion criteria was reviewed and analyzed. Each study was examined for details such as authors, title of research, publication year, country, purpose, methods, and key findings.

2. Results

Forty-two studies were conducted on the inclusion of children with developmental disabilities in the following Arab countries: UAE, Jordan, Saudi Arabia, Kuwait, Lebanon, Qatar, Egypt, Iraq, Oman, and Palestine. This means that out of 21 countries that were examined, only 10 produced empirical research on IE. Retrieved studies could be grouped into three categories: (1) studies on attitudes toward and perceptions of inclusion, (2) studies on barriers to inclusion, and (3) studies on satisfaction with and evaluation of inclusion. Authors of each study, date of publication, country, sample, purpose, data collection methods, and main findings are shown in Tables 1–3.

3. Studies on attitudes toward and perceptions of inclusion

Thirty-three studies investigating attitudes toward and perceptions of inclusion of children with developmental disabilities in Arab countries were published (Table 1). These studies examined perceptions and attitudes of several groups (special education and regular education teachers, administrators, parents, children) toward IE. Eleven studies (Alghazo, 2002; Alghazo, Dodeen, & Alqaryouti, 2003; Alghazo & Gaad, 2004; Almotairi, 2013; Alquraini, 2012; Alshahrani, 2014; Anati, 2012; Bradshaw, 2009; El-Ashry, 2009; Gaad, 2001; Gaad & Khan, 2007) reported negative attitudes and perceptions; 10 studies (Alanzi, 2012; Al Sa'idi, 2013; Alyn, 2009; Dukmak, 2012; ElZein, 2009; Fayez, Dababneh, & Jumaian, 2011; Khochen & Radford, 2012; Opdal, Wormnæs, & Habayeb, 2001; Somaily, Al-Zoubi, & Abdel Rahman, 2012; Usman, 2011) suggested positive attitudes and supportive views; and 3 studies (Al-Kindi, Al-Juhashi, & Al-Saffar, 2012; Hussien & Al-Qaryouti, 2014) reported neutral or mixed attitudes and perceptions.

Several studies reporting positive perceptions of and attitudes toward inclusion of children with developmental disabilities also reported that those attitudes and perceptions were made contingent upon specific factors such as: adequate preparation of teachers (Fayez et al., 2011), reasonable teaching loads (Gaad & Khan, 2007), sufficient budgeting to support inclusion (Khochen & Radford, 2012), school accessibility and teacher support (Opdal et al., 2001; Rodriguez, 2013; Usman, 2011), and specific sets of prerequisite skills by children with disabilities (Abu-Hamour & Muhaidat, 2013a, 2013b)

Several studies also revealed that attitudes toward and perceptions of IE varied according to several variables such as individuals' educational attainment, type and severity of disability, age, and experience with persons with disabilities (Abu-Hamour & Muhaidat, 2013a, 2013b; Al-Faiz, 2006; Al Zyoudi, 2006; Emam & Mohamed, 2011; Rodriguez, 2013).

Two studies reported differences among teachers' attitudes toward inclusion from one Arab country to another (Al Zyoudi, Al Sartwai, & Dodin, 2011; Hamaidi, Homidi, & Reyes, 2012). Finally, while several studies indicated that special education teachers had more positive attitudes than general education teachers toward inclusion (Alahbabi, 2009; Alahmadi, 2009; Al Sa'idi, 2013), some studies showed that mainstream teachers' attitudes were more positive toward IE (Alquraini, 2012).

4. Studies on barriers to inclusion

Five studies (Abbs, 2009; Alborno, 2013; Alborz, Slee, & Miles, 2012; Aldaihani, 2011; Wehbi, 2006) addressed barriers to inclusion of children with developmental disabilities in Arab countries. Barriers reported in most of these studies included: physical inaccessibility of schools and classrooms, negative attitudes, limited teacher training and development, lack of support services, lack of parent involvement, and unclear inclusion policy guidelines.

Table 1
Studies on attitudes toward inclusion of children with developments disabilities in Arab countries.

Author(s), year	Country	Sample	Purpose	Method	Main findings
Abu-Hamour and Muhaidat (2013a)	Jordan	A convenience sample of 148 parents of children with autism spectrum disorder (ASD)	This study investigated attitudes of parents in Jordan toward inclusion of children with ASD in public schools, and identified most important prerequisite child skills believed by parents to be prerequisites for successful inclusion of these children.	A survey was used to collect data	Findings revealed that the variables that correlated with parents' attitudes toward inclusion were education levels and high- or low-functioning ASD. The findings also indicated that parents believed prerequisite skills needed for including children with ASD in descending order included: independence skills, playing skills, behavioral skills, imitation skills, routine skills, social skills, attention skills, language skills, pre-academic and academic skills.
Abu-Hamour and Muhaidat (2013b)	Jordan	A convenience sample of 92 special education teachers	This study investigated attitudes of special education teachers toward inclusion of students with ASD in public schools, and identified most important prerequisite skills believed by teachers to be prerequisites for successful inclusion.	A survey was used to collect data	Results revealed significant differences in teachers' attitudes toward inclusion of students with ASD according to teacher age, education levels, years of teaching experience, and educational setting. The teachers believed that the following prerequisite skills were needed for successful inclusion: independent skills, imitation skills, behavioral skills, playing skills, social skills, routine skills, attention skills, language skills, and pre-academic and academic skills.
Alahbabi (2009)	United Arab Emirates (UAE)	A sample of 900 teachers (the entire population of the 367K-12 special education teachers in public, and a stratified random cluster sample of 533 regular kindergarten, elementary, middle, and high school teachers)	This study sought to identify factors contributing to differences in attitudes of public school teachers toward the inclusion of students with disabilities in general education classes	The Scale of Teachers' Attitudes Toward Inclusive Classrooms (STATIC) was used	Results revealed that special education teachers in the UAE had more positive attitudes than general education toward inclusion; exhibited greater confidence in their ability to teach students with disabilities than general education teachers; and reported greater willingness in making proper accommodations for students with disabilities.

Table 1 (*Continued*)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Alahmadi (2009)	Saudi Arabia	A multi-stage random sample of 251 Saudi special and general education teachers	This study explored teachers' perspectives and attitudes regarding the inclusion of students with learning disabilities (LD) in regular Saudi public schools	A modified version of Opinions Relative to the Integration of Students with Disabilities (ORI) survey was administered to the whole sample, and interviews were conducted with 20 teachers	Results showed that both general education and special education teachers believed their training was inadequate to manage the behaviors of students with disabilities, and were concerned about the perceived inability of regular education teachers and schools to meet the learning needs of students with LD. Results also revealed significant differences in special and general education teachers' attitudes toward the inclusion of students with LD in regular Saudi public schools, favoring special education teachers. Further, the findings indicated that male teachers' attitudes toward inclusion of students with LD were more positive than female attitudes.
Alanzi (2012)	Saudi Arabia	A purposefully selected sample of 162 individuals participated in this study (4 headteachers, 23 general teachers, 10 special education teachers, 105 children with and without disabilities, 9 parents of children with disabilities, and 11 parents of children without disabilities)	This study explored teachers' and parents' perspectives on inclusion of children with disabilities	Data was collected through interviews and observations	Findings showed that attitudes toward inclusion were generally positive. Further, understandings and implementation of inclusion in Saudi Arabia were informed mainly by Islamic precepts, especially those concerning equity and difference, but cultural traditions also played a role.
Al-Faiz (2006)	Saudi Arabia	A convenience sample of 240 elementary school teachers	This study investigated the attitudes of elementary school teachers toward the inclusion of students with autism in public schools	A questionnaire was used to collect data	Teachers' attitudes toward inclusion were significantly influenced by teaching experience and family/relative with disability
Alghazo (2002)	Jordan	A random sample of 337 regular and special education teachers and administrators from 12 high schools participated and 6 special education schools	This study sought to understand teachers' and administrators' attitudes toward inclusion of children with disabilities in public schools	Arabic versions of the Attitudes Toward Persons with Disabilities (ATDP) scale and the Mainstreaming Attitude Scale (MAS) were used	Findings revealed that teachers' and administrators' attitudes toward including students with disabilities, especially students with intellectual disabilities, were generally negative

Table 1 (*Continued*)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Alghazo et al. (2003)	Jordan, UAE	A convenience sample of 597 preservice education students from three universities in Jordan and one university from UAE	This study explored preservice teachers' attitudes toward inclusion of children with disabilities in the regular classroom	A demographic survey and an Arabic version of the ATDP scale were used	Results of this study revealed that both male and female preservice teachers held negative attitudes toward persons with disabilities. The results also revealed that the amount of contact with these persons did not affect teachers attitudes toward them. The conclusion was that preservice teachers in both Jordan and the UAE did not support inclusion of students with disabilities in regular schools.
Al-Kindi et al. (2012)	Iraq	A purposefully selected sample of 878 adults recruited through an electronic survey website	This study investigated Iraqis' attitudes toward inclusion of persons with Down's syndrome	A self-administered questionnaire was used	Findings indicated that most respondents supported the inclusion of persons with Down's syndrome in the community, but objected to their inclusion in regular public schools
Almotairi (2013)	Kuwait	Two samples participated in this study. The first sample consisted of 560 teachers and head teachers working in 209 mainstream and special primary schools in Kuwait. The second sample included 30 teachers, head teachers and 4 decision makers.	This study examined attitudes of Kuwaiti primary teachers and head teachers toward inclusion of children with disabilities.	Two methods were used to gather data: a questionnaire and interviews	Results showed that, overall, teachers were negative about the concept. Teachers from mainstream schools were more supportive of inclusion than special school teachers and, male teachers were more supportive than female teachers. Proponents of inclusion viewed it as an ethically sound movement, and socially beneficial to society and the development of all children. Opponents of inclusion believed social benefits of inclusion were not significant enough to justify placing the academic achievement of regular classroom children at risk.
Alquraini (2012)	Saudi Arabia	Three hundred and three teachers were selected through stratified and cluster sampling techniques	This study investigated teachers' perceptions of inclusion of students with severe disabilities in general education settings	An Arabic version of the Opinions Relative to Integration of Students with Disabilities (ORI) was used in this study	Findings of the study indicated that teachers had slightly negative views on inclusion of students with severe disabilities, with general education teachers showing more positive perceptions than special education teachers

Table 1 (*Continued*)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Al Sa'idi (2013)	Oman	Two Omani specialized teachers and 3 Omani mainstream class teachers	This study explored teachers' perceptions toward the inclusion of students with learning difficulties (LD) in mainstream grades 1–4	A qualitative case study was used to obtain data through self-report questionnaires, individual interviews, and a focus group interview	Findings revealed that teachers held varied perceptions toward inclusion. While all of them generally endorsed inclusion, special education teachers had more supportive views of inclusion than the mainstream class teachers
Alshahrani (2014)	Saudi Arabia	A feasible sample of 120 teachers of students with hearing impairments	This study explored teachers' and administrators' perceptions of and attitudes toward inclusion of students with hearing impairments	A questionnaire of inclusive education and in-depth interviews were used to collect data	Results indicated that teachers tended to be somewhat against inclusion of students with hearing impairments in mainstream classes
Alyn (2009)	Qatar	A convenience sample of 40 mothers of children with moderate to severe disabilities attending a special education center	This study investigated perceptions of mothers of children with disabilities	Data were collected using interviews with mothers	Results revealed that appropriate inclusive schooling opportunities were among mothers' major concerns. Mothers perceived inclusion as a necessary factor in fostering community awareness and understanding of persons with disabilities
Al Zyoudi (2006)	Jordan	A convenience sample of 90 teachers (54 female and 36 male) from seven schools who had experience in teaching students with disabilities in public or special education schools	This study investigated general education and special education teachers' attitudes toward inclusion of children with disabilities in Jordan, and the factors that influenced such attitudes	Information was collected through group interviews with teachers	Findings revealed that teachers' attitudes were strongly influenced by type and severity of disability, the length of teaching experience, and teacher training
Al Zyoudi et al. (2011)	Jordan and the UAE	A total of 300 undergraduate students from two universities in the UAE and Jordan participated in this study. All were studying special education, early childhood or elementary education; and all had completed six semesters of study	This study investigated preservice teachers attitudes toward inclusive education in Jordan and the UAE	A questionnaire developed by the researchers was used in this study	Results indicated that Jordanian students tended to have more positive attitudes toward inclusive education than their UAE counterparts; the results also indicated that there were no significant differences due to gender. Furthermore, the results indicated that there were significant differences due to teacher preparation and availability of resources.

Table 1 (*Continued*)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Anati (2012)	UAE	A convenience sample of 26 teachers in UAE private and public schools	This study aimed at understanding teachers' perspective on inclusive education practices in UAE schools	A questionnaire was used	Results showed that teachers were dissatisfied with inclusion practices due to a lack of qualified teachers, proper training, knowledge about inclusion among senior-level administrators, financial support, and lack of awareness of the issues that students with and without disabilities may face in inclusive settings.
Bradshaw (2009)	UAE	A convenience sample of 250 classroom teachers	This study investigated teachers' concerns about inclusion of students with disabilities	Two questionnaires were used in this study	Results indicated that most teachers indicated that having children with disabilities in the classroom was a good opportunity to work with these children; however, teachers indicated that they did not want to learn more about children with disabilities
Dukmak (2012)	UAE	A random sample of 800 primary teachers	This study investigated the attitudes of regular classroom teachers toward including students with disabilities. The study also examined teachers' attitudes in relation to their gender, age and years of teaching experience	An attitude scale and a checklist were used in this study	Results indicated teachers showed positive attitudes toward educational inclusion, especially male teachers. Teachers' years of experience were inversely related to attitudes toward educational inclusion. Furthermore, teachers' age was not related to their attitudes
El-Ashry (2009)	Egypt	A sample of 1625 preservice teachers, who majored in elementary and secondary education at the Kafrelsheikh University in Egypt	This study examined preservice teachers' attitudes toward inclusion of students with disabilities in general education classrooms in Egypt	An Arabic version of the Preservice Teachers' Attitudes toward Inclusion questionnaire was used	Results revealed that preservice teachers' attitudes toward inclusion of students with disabilities in general education classrooms were negative, especially toward students with intellectual disabilities and emotional and behavioral disorders
ElZein (2009)	Lebanon	A purposefully selected sample of 15 parents of students with LD	This study investigated parents' attitudes toward including students with disabilities in regular elementary schools	Individual in-depth interviews were conducted	Results indicated that parents had positive attitudes toward inclusion

Table 1 (*Continued*)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Emam and Mohamed (2011)	Egypt	A convenience sample of 95 primary school teachers and 71 preschool teachers	This study explored the relationship between teacher self-efficacy and teacher attitudes toward the inclusive education	Information was collected through the Opinions Relevant to Integration of Students with Disabilities (ORI) and Teacher Self-Efficacy Scale (TES)	Results revealed that attitudes toward inclusion scores could predict self-efficacy scores on the TES for both preschool and primary school teachers. No differences were found between preschool and primary school teachers' attitudes toward inclusion of children with disabilities
Fayez et al. (2011)	Jordan	A purposefully selected sample of 20 undergraduate seniors in general early childhood education	This study examined Jordanian preservice early childhood teachers' attitudes toward inclusion and the adequacy of their preparation for implementing inclusive education	Information was collected through interviews	Results indicated that teachers held strong and positive attitudes toward the concept of inclusive education, felt that their preparation was inadequate in relation to students with disabilities, and anticipated different barriers within the school and the macro social and cultural contexts that would hinder successful inclusion in early childhood settings in Jordan.
Gaad and Khan (2007)	UAE	A purposefully selected sample of 12 primary mainstream teachers	This study attempted to identify primary mainstream teachers' perceptions about including students with disabilities in mainstream education settings	Both a self-administered questionnaire and semi-structured interviews were used in this study to collect information	Results indicated that primary mainstream teachers favored special education settings over full inclusive practices. These teachers felt students with disabilities lacked skills needed to master the mainstream regular classroom course content. The teachers also felt their heavy teaching loads make it hard to meet the unique needs of students with disabilities.
Hamaidi et al. (2012)	Jordan and UAE	A convenience sample of 300 early childhood teachers who taught in kindergartens and primary schools	This research explored early childhood educators' perceptions of academic aspects and social and emotional aspects of inclusion practices	A questionnaire was used to collect information	Result showed that Emirate early childhood educators had more positive attitudes toward inclusion of children with disabilities than Jordanian educators
Hussien and Al-Qaryouti (2014)	Oman	A convenience sample of 703 regular education teachers	This study investigated regular education teachers' attitudes toward inclusion of students with disabilities	An attitudes scale toward inclusion was used to collect data	Findings suggested that the Omani regular education teachers generally held neutral attitudes toward inclusion

Table 1 (*Continued*)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Khochen and Radford (2012)	Lebanon	A purposefully selected sample of 40 teachers, headteachers, and administrators from mainstream schools involved with an inclusion project	This study explored the attitudes of teachers and headteachers toward educating people with disabilities in mainstream primary schools	Information was collected through interviews	Findings indicated positive attitudes toward the inclusion of students with disabilities. However, participants expressed reservations about including all students, especially those with social, emotional and behavioral impairments. Participants were concerned about limited training, lack of qualified teachers, and limited budgeting to support inclusion.
Opdal et al. (2001)	Palestine	A purposefully selected sample of 90 teachers at six schools, 97% of them had students with disabilities in their classes	This study explored teachers' opinions about the inclusion of students with disabilities in regular primary schools	A questionnaire was used to assess teachers' attitudes	Results indicated that 60% of the teachers supported inclusion of students with disabilities; however, 90% of the teachers expressed a need for changes in the public schools in order to meet the needs of these students
Rodriguez (2013)	Jordan	A sample of 3 school administrators, teachers, and students with disabilities and their families	This study explored perceptions of inclusive education in schools operated by the Jordan field of the UNRWA	Data was collected through interviews, classroom observations, and document reviews	Findings suggested perceptions of inclusion differed based on: student's disability, teacher's self-efficacy and feeling of preparedness toward meeting the needs of students, and the impact of overcrowded classrooms and limited instructional time
Somaily et al. (2012)	Saudi Arabia	A convenience sample of (111) parents of students with learning disabilities	This study investigated attitudes of parents of students with learning disabilities attitudes toward resource rooms	A questionnaire was used to measure parents' attitudes	Results revealed that parents had positive attitudes toward resource rooms. No significant differences were found in parents' attitudes due to gender, academic achievement, age, or number of family members.
Usman (2011)	UAE	A purposefully selected sample of 85 school administrators	This study investigated public school administrators' opinions about inclusion of students with disabilities in public schools	A questionnaire and government websites and journals related to education laws and trends were used to obtain information	Results indicated that school administrators supported full inclusion; however that was contingent on the nature and severity of the disability, teacher preparedness and training, and the physical layout of the school

Table 2
Studies on barriers to inclusion of children with developments disabilities in Arab countries.

Author(s), year	Country	Sample	Purpose	Method	Main findings
Abbs (2009)	Qatar	A convenience sample of 40 mothers of children with moderate to severe disabilities aged 4–19 years	This study explored community inclusion opportunities available to Qatari children with disabilities as perceived by their mothers	Individual interviews with mothers	Mothers expressed a desire for a more inclusive atmosphere for children with disabilities. This study also identified four categories of barriers to including children with disabilities in schools in Qatar: physical inaccessibility, negative attitudes, lack of understanding about disability, and personal physical limitations for commuting within the school.
Alborno (2013)	UAE	Head of Special Education Department, principals and teachers, and students and parents of three primary government schools	This study investigated the implementation of inclusive education in the three participating schools	Semi-structured interviews, observations, and document analysis	Findings revealed both barriers and resources in five educational aspects of inclusive education in UAE: teacher training and development, school structures, support services, assistive technology and awareness programs
Alborz et al. (2012)	Iraq	A total of 6032 households having children under the age of 18	This study explored challenges confronting Iraq in developing inclusive education practices	A survey questionnaire, interviews and focus group discussions were used to collect data	Results revealed that a number of factors hinder the implementation of effective inclusive practices. These factors included: education infrastructure, negative attitudes toward individuals with disabilities, lack of educational and social support, and gaps in service provision.
Aldaihani (2011)	Kuwait	A random sample of 25 individuals (7 managerial staff, 7 teachers, 5 students with disabilities, and 6 parents)	This study sought to understand the state of inclusive education of students with mild intellectual disabilities from the perspectives of teachers, students, and parents	Data was collected through interview, observation, and document analysis	Results suggested the existence of both internal and external barriers to inclusive education for children with disabilities in Kuwait. School staff had differing views on definitions and purposes of inclusive education. Some challenges to inclusion related to school preparedness and culture, others related to inclusion support, teacher efficacy, parent involvement, and educational policies.
Wehbi (2006)	Lebanon		This study explored challenges to inclusive education in Lebanon as perceived by children, parents, and teachers	Information was collected through interviews and focus groups	Findings revealed that participants called for change efforts on various levels to support inclusion: awareness-raising; policy change; capacity-building; and community-building

Table 3

Studies evaluating inclusion of children with developmental disabilities in Arab countries.

Author(s), year	Country	Sample	Purpose	Method	Main findings
Abushaira (2013)	Saudi Arabia	A purposefully selected sample of 41 teachers and 113 parents of children who have a hearing impairment	This study investigated the effects of inclusion on the language development of students with hearing impairment	A language development list covering receptive and expressive language was used	Teachers reported higher language scores for students in an inclusive school. Parents' assessments showed no statistically significant differences in language development between students in the inclusive school and those at the school for the deaf.
Al Attiyah and Lazarus (2007)	Qatar	A purposefully selected sample of 54 children between the ages of 8 and 10, 27 children with disabilities (13 male, 14 female) and 27 general education children (13 male, 14 female)	This study sought to gain an understanding of the children's ideas about inclusion	Individual interviews with children	Findings indicated that 65 percent of the children with disabilities felt happy about coming to a regular school. Responses of both groups of children (children with and without disabilities) indicated their realization that they were more similar than different. The majority of children with disabilities reported that both peers and teachers treated them very well.
Alkhateeb and Hadidi (2009)	Jordan	A convenience sample of 135 resource room teachers and 190 mothers of children served in resource room programs	This study examined satisfaction of teachers and parents with resource room programs	Information from teachers was gathered using questionnaires, semi-structured interviews, and classroom visits. Information from parents was gathered using a brief questionnaire.	Teachers reported a moderate level of satisfaction with working conditions in resource rooms. They were most satisfied with their job as resource room teachers and relationships with colleagues. They were most dissatisfied with salary and family involvement in educational programs. Mothers were satisfied with resource rooms. They were most satisfied with the improvement in the academic performance of their children in the resource room and least satisfied with the school's communication with them.
Al-Manabri et al. (2013)	Kuwait	An unidentified number of staff from one Kuwaiti special education school working with and among teachers in 28 mainstream primary schools	This study examined the impact of a project aimed at improving Kuwaiti mainstream teachers' attitudes, knowledge, and teaching practices related to inclusion	A questionnaire was used to collect data	Findings indicated an improvement in mainstream teachers' attitudes toward students with LD and inclusive practices

Table 3 (Continued)

Author(s), year	Country	Sample	Purpose	Method	Main findings
Crabtree (2007)	UAE	A convenience sample of 15 mothers of 4–16 year old children with disabilities	This study explored mothers' perceptions in relation to social inclusion of their children	Individual in-depth interviews with mothers	Findings indicated that social inclusion of children with disabilities was interpreted in diverse ways, depending on the influences of culture and religion
Haimour (2013)	Saudi Arabia	A random sample of 523 regular and special education teachers working in inclusive settings	This study evaluated educational programs provided to students with disabilities in inclusive schools	A questionnaire was used to collect data	Results indicated that teachers viewed educational programs offered in their schools as generally acceptable. Teachers' evaluations significantly differed according to their educational attainment. Furthermore, no significant differences were found in teachers' evaluations based on gender or teaching experience.

5. Studies evaluating inclusion

Six studies evaluated inclusion of children with developmental disabilities in Arab countries. Three studies suggested an overall satisfaction with inclusion (Al Attiyah & Lazarus, 2007; Alkhateeb & Hadidi, 2009; Haimour, 2013). One study (Abushaira, 2013) indicated that IE was at least as effective as non-inclusive settings in promoting language development. Another study (Crabtree, 2007) indicated that social inclusion of children with disabilities was interpreted in diverse ways. A third study (Al-Manabri, Al-Sharhan, Elbeheri, Jasem, & Everatt, 2013) showed that training produced an improvement in mainstream teachers' attitudes toward students with learning disabilities and inclusive practices.

6. Discussion and implications

This study reviewed research published in English about inclusion of children with developmental disabilities in Arab countries in the last two decades. The results revealed that there has been a growing interest in recent years in inclusion research in some Arab countries. However, this research is apparently not yet a priority for most of these countries. This might be because IE is relatively new in this region (Gaad, 2010). Although Arab countries have recently declared their commitment to inclusion, this approach is not being satisfactorily implemented in most Arab countries. Weber (2012) questioned whether inclusion concepts and approaches used in Western countries can be adopted by many Arab countries without adaptation or considerations of cultural impact, where special schools and unique cultural restrictions such as gender segregation in mainstream school systems at all levels are common.

The results also revealed that the major topic addressed in inclusion research in Arab countries was attitudes toward IE. It was found that the results of studies in Arab countries on teachers' attitudes toward IE and factors influencing these attitudes have been inconsistent. In this regard, this result is similar to results of previous studies in many other countries (Cook, Cameron, & Tankersley, 2007; De Boer, Pijl, & Minnaert, 2011; Hastings & Oakford, 2003; Jobe, Rust, & Brissie, 1996; MacFarlane & Woolfson, 2013; Pearman, Huang, Barnahart, & Mellblom, 1992; Wilczenski, 1992).

The finding that most studies investigated attitudes toward IE apparently reflects researchers' recognition that the successful implementation of inclusion largely depends on teachers being positive about it (Avramidis & Norwich, 2002; Boyle, Scriven, Durning, & Downes, 2011; Buell, Hallam, Gamel-McCormick, & Scheer, 1999; D'Alonzo, Giordano, and Vanleeuwen, 1997; De Boer et al., 2011; Jull & Minnes, 2007). As Buell et al. (1999) pointed out, studying teachers' attitudes toward inclusion can help identify areas that teachers need support to help them implement effective and successful inclusion. However, teachers' perceptions of inclusion become more positive with increased knowledge and training related to disabilities (Bender, Vail, & Scott, 1995; Bennett, Deluca & Burns, 1997; Gemmell-Crosby & Hanzlik, 1994; Sack, 1998; Shoho, Katims, & Wilks, 1997; Stoler, 1992; Taylor, Richards, Goldstein, & Schilit, 1997), a factor found to be seriously lacking in most Arab countries.

In addition, the results of this study are, generally, consistent with results of many studies in other developing countries regarding the main barriers to implementing IE such as crowded classrooms; inaccessibility of buildings; inadequate training of teachers; and lack of effective policies and regulations, resources, teacher training, and parent involvement (e.g.,

Aysegul, 2010; Charema, 2010; Eleweke & Rodda, 2002; Hooker, 2007; Malak, 2013; Vaillant, 2011). Studies evaluating IE in Arab countries suggested that stakeholders who were surveyed were generally satisfied with inclusion. However, because there are no uniform definitions for inclusion in Arab countries, it is difficult to compare data presented in the current study with those reported in published international research on this issue.

The current review is by no means exhaustive as it was confined to empirical studies published in English in refereed journals and doctoral dissertations/master theses that were accessible through online databases. As mentioned earlier, studies published in Arabic were excluded because, compared to databases in English, Arabic databases are still primitive and most of them provide only partial information.

Further, several developments related to inclusion in Arab countries have not been covered in this review. For example, dozens of projects have been implemented and consultancies offered concerning IE to many Arab countries such as: "Inclusive schools for Iraq: A professional learning model" (Ainscow, Miles, & Slee, 2011), "Educate a child: For an IE in Iraq" (UNESCO Office for Iraq, 2012), "Syrian inclusive education project" 2003–2005 (UNESCO, n.d.), "Inclusive educational schools project in Kuwait" (Global Educational Consultants, 2010), and "Toward inclusive education for all Palestine" (Karlsson, 2004).

Certain limitations of the current study have to be acknowledged and need to be taken into account when considering its findings. The databases used for searching the literature may not have covered all research carried out about IE in Arab countries. Thus, the study may have underestimated the amount of research related to IE in Arab countries. Another limitation is that IE-related research in the majority of Maghreb Arab countries (Algeria, Tunisia, Morocco, Libya, and Mauritania) is commonly published in French. Thus, limiting this review to research published in English may have resulted in the exclusion of an unidentified number of relevant studies. Searching this literature is necessary to gain a more in-depth insight into Arab research related to IE. Second, the results of some studies included in this review were not reported in detail.

7. Conclusions and recommendations

The results of the current study call for more attention to IE by both researchers and policy makers in Arab countries. The results also highlight the need for addressing IE policies and models of implementation. More research is also warranted to test the generalizability of the results of the current study. Generalizations about IE in Arab countries based on the results of the current study should be avoided because the relatively little research conducted came from few Arab countries. Furthermore, despite similarities among Arab countries, there are tremendous differences in educational policy and different models and approaches based on cultural and historical factors. There is no common strategy for dealing with children with disabilities in these countries, and each country has adopted a spectrum of responses from segregation to varying levels of inclusion (Weber, 2012). Thus, the need for further research aimed at analyzing IE practices in these countries is clear.

It is also noteworthy that in most of the studies reviewed attitudes and other aspects of IE were examined using self-report questionnaires. As Holtgraves (2004) indicated, participants tend to respond to self-report items in a socially desirable manner (i.e., responding in a manner that makes the respondent look good rather than responding in an accurate and truthful manner). It is strongly recommended, then, that future researchers use other methods of data collection, such as teacher interviews, focus group discussion and classroom observation. Also, most studies published about IE in Arab countries focused on surveying attitudes rather than modifying them. But in addition to assessing and changing attitudes, IE involves change of teacher training programs, and change of and modification in content, approaches, structures and strategies (Charema, 2010; UNESCO, 2001). In light of the above, further research demonstrating strategies for the effective implementation of IE (e.g., awareness creation, teacher development, enhancing parent involvement, and facilitating professional collaboration among teachers) is needed. Also needed are more systematic efforts to promote positive attitude toward effective implementation of IE and to train and support teachers in implementing appropriate IE programs to better meet the needs of children included in regular schools.

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