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Administrative and leadership requirements for implementing evidence-based practices in special education programs: the perspective of special education teachers

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Administrative and leadership requirements are crucial to the application of evidence-based practices (EBPs) in special education. Therefore, the current study aimed to assess the availability of administrative and leadership requirements for applying EBPs in special education programs from the teachers' perspective, as well as determine the differences in their availability depending on the variables of disability category (intellectual disability (ID), autism spectrum disorder (ASD), and learning disabilities (LDs)) and school stage (e.g., primary or middle school). The sample included 243 special education teachers working in the city of Riyadh, Kingdom of Saudi Arabia. A questionnaire on the administrative and leadership requirements for implementing EBPs in special education programs (prepared by the researchers) was used to collect data. The results revealed the availability (which ranged from moderate to high) of administrative and leadership requirements for implementing EBPs. Moreover, there were differences in the availability of administrative and leadership requirements according to students' disability category; these differences were in favor of the learning disability group. However, there were no differences according to the academic stage. We recommend conducting further research on administrative and leadership requirements using different methods.

KEYWORDS

administrative, evidence-based practices, institutional requirements, Saudi Arabia, school leadership, special education teachers, students with disabilities

1 Introduction

EBPs have a positive impact on the performance of students with disabilities (Torres et al., 2012); further, their application has become an essential requirement for educational systems. This requires the availability of competencies for their application among teachers, a motivating school environment, an appropriate educational climate, support from educational departments and decision-makers, and the availability of legislation that regulates their use

(Bubb-McKinnie, 2017; Locke et al., 2021; Moore et al., 2021). Meanwhile, administrative and leadership requirements are one of the basic guarantees for EBPs' implementation (Pauling et al., 2023).

EBPs originated in the United States, where they were stipulated in the No Child Left Behind Act (2002) and the Individuals with Disabilities Education Act (2004). These practices have been strengthened and have become more widely used since 2013, when the Council for Exceptional Children pledged to adhere to them. Several standards related to their use have been developed, including quality indicators and a classification of practices (Cook et al., 2014). Four sets of criteria have been identified for special education teachers to evaluate the practice used: research design, quality, supporting quantitative studies, and the size of the effect associated with the practice used (Alnaim, 2021).

In the field of special education, EBPs are instructional techniques designed to achieve predetermined outcomes based on various research design paradigms that provide the greatest opportunities for achieving beneficial outcomes for students with disabilities (Cook et al., 2018). EBPs help teachers in planning, implementing, and evaluating their activities. These practices include specific and clear teaching methods that have proven effective through controlled research, and have led to desirable results for students with disabilities under different circumstances (Mitchell, 2020).

EBPs may be described according to the following criteria: their results are not guaranteed for every learner with disabilities; when implemented on a large scale, they face clear and tangible challenges; they are not the only variable taken into consideration in the educational decision-making process; and they require different standards and requirements to be applied, which may lead to difficulties within the schools where they are implemented (Scheeler et al., 2016; Spooner et al., 2019).

EBPs assist special education teachers in many ways: they help them select the elements that should be taught and motivate them to support students with disabilities (Alnaim, 2021). Moreover, they provide teachers with an alternative perspective on evidence grounded in the realities of classroom teaching, which they find compelling when making instructional decisions for students with disabilities (Cook and Cook, 2016). EBPs have been used to teach arithmetic skills to students with various types of disabilities, including moderate and severe developmental disabilities (Spooner et al., 2019).

1.1 Administrative and leadership requirements for implementing EBPs

Administrative and leadership requirements are crucial for the successful implementation of EBPs in classrooms for students with disabilities (Pauling et al., 2023). They are critical drivers of EBPs' implementation (Stadnick et al., 2019; Harvey et al., 2020). School leaders play an essential role in using implementation strategies which, in turn, support special education teachers in implementing EBPs (Moore et al., 2024). Because of the high significance of these requirements, school leaders must pay special attention to periodically reviewing training levels and the school staff's ability to implement EBPs in their schools, as they are the ones who make decisions or provide input regarding professional development opportunities for school staff, as well as the impact of their decisions on students in aspects such as placement and services provided (Alicyn Ferrell, 2006).

The requirements associated with the implementation of EBPs can be divided as follows. The first category pertains to pre-implementation requirements, namely, the affordability of the intervention, its feasibility, requirements, validity, reliability, appropriateness, cost savings, positive outcomes, adequacy of information, availability of funding, support from external sources, adequacy of technical assistance, staff availability and attitude toward EBPs, organizational capacity, alignment between EBPs and the organization's mission, previous implementation experience, experience in evidence search, and development. The second category pertains to implementation-phase requirements, which include the flexibility of the intervention and its requirements, availability of funding, adequacy of training and technical assistance, access to sufficient and appropriate referrals, and faithful employment and implementation. The third category pertains to sustainability-phase requirements, which include the costs and benefits of the intervention, availability of financing, support from external sources, the need for planning, and compatibility between EBPs and the organization's mission. One of the most important factors facilitating the implementation of EBPs is easy access to resources related to intervention, collaboration, and teamwork (Palinkas et al., 2018; Silveira-Zaldivar and Curtis, 2019; Moore et al., 2024).

Both general organizational requirements (namely, organizational culture, organizational environment, and transformational leadership, and strategic requirements)—represented by the implementation environment and leadership—play an important role in EBPs' implementation (Powell et al., 2017). The organizational context, represented by the institutional climate, culture, and resources, can hinder or enhance EBPs' implementation in general or special education. Moreover, recognizing the role and importance of paraprofessionals charged with implementing EBPs plays an important role in implementing these practices (Bubb-McKinnie, 2017; Moore et al., 2021). Another set of organizational factors that influences the use of EBPs includes attitudes toward these practices, self-efficacy, norms related to them, intention to use them, and teachers' and students' dissatisfaction with these practices (Locke et al., 2021). Moreover, it has become clear that there is a positive relationship among teachers' application of EBPs, their self-efficacy, and the way they are prepared to apply these practices (Fortson, 2018).

School leadership is an element of the educational environment that can hinder EBPs' implementation. Failing to encourage teachers and provide them with support during implementation may lead to EBPs not being implemented, as their application requires great effort from the teacher, as well as support from the school administration (Hornby et al., 2013). Moreover, the leadership characteristics of school principals involved in implementing EBPs with students with disabilities play a crucial role: the optimal leadership style is associated with a more favorable climate for implementing EBPs, compared with the undifferentiated and unintegrated leadership styles (Stadnick et al., 2019).

1.2 Obstacles to implementing EBPs with students with disabilities

Expectations for EBPs to be used are increasing; however, the most difficult step in this process is to determine whether these practices can be implemented while maintaining a high standard of

quality (Cullen and Adams, 2012). However, EBPs' implementation has limitations, which may include issues related to the training and readiness of teachers to teach students with disabilities; the lack of programs to prepare them as teachers; the lack of encouragement from the educational culture to use EBPs; the lack of executive support provided to overcome the obstacles facing the application of these practices (Barry, 2022); and the lack of supplies, support, resources, time, and appropriate intervention features for students with disabilities (Barry et al., 2020; Almutlaq, 2022). Additionally, many EBPs are overrepeated by teachers, which contradicts reality (Hepburn and Beamish, 2019). Other issues include inconsistent understanding among general education teachers, special education teachers, and paraeducators regarding the definitions and uses of EBPs (Locke et al., 2022), as well as teachers' lack of knowledge about how to use online resource centers and employ them when implementing EBPs (Gapsis, 2017). Training, time, support, prioritization, materials, employee mindset, and attitudes toward EBPs are the most important barriers to their successful implementation (Silveira-Zaldivar and Curtis, 2019). Some EBPs require more time and effort from teachers to implement them due to the way they are designed (Alghamdi, 2021a).

School leaders have reported various barriers to implementing EBPs within schools, ranging from moderate to severe: time, staff acceptance of these practices, problems in preparing master schedules, costs, implementing complex intervention procedures, lack of support from key stakeholders, inappropriate school environment, disconnection between school policy and what students actually need, ineffective/unsupportive leadership, and issues related to adopting and abandoning programs and practices quickly (Pauling et al., 2023), in addition to inappropriate culture/environment and inappropriate organizational factors such as lack of communication (Moore et al., 2024). The relationship between the organizational context and the individual characteristics of administrative or service-providing leaders in schools that implement EBPs has been studied; prior findings have shown considerable cultural pressure in special education schools, where implementation leadership was positively associated with the implementation environment, while the size of enrollment in special education schools was negatively associated with the availability of resources and the implementation environment (Moore et al., 2021), while they have also revealed a significant correlation between transformational leadership and the demotivating environments for agents implementing EBPs (Brimhall et al., 2016).

Despite the significant role played by administrative and leadership requirements in the success of these practices, some studies have shown shortcomings and weaknesses of these requirements. In terms of school principals' ability to implement EBPs, prior studies have reported the absence or limited training provided to school principals in the pre-service stage to implement EBPs, inadequacy of in-service training to implement these practices, and lack of knowledge and competence regarding the basic implementation concepts related to these practices (Pauling et al., 2023). Therefore, there is an urgent need to increase school leaders' knowledge and skills related to implementation science to better utilize implementation strategies that address the shortcomings of implementing these practices (Moore et al., 2024).

High-performance implementation teams formed by school leaders comprise a powerful resource for administrators to support teachers' effective implementation of EBPs. Unfortunately, many of these teams are traditionally organized and lack communication, coordination, and synergy among their members to achieve substantive results. In other words, when strong and trained teams are prepared, they create conditions for team members to effectively support EBP implementation, analyze performance data, bridge research to practice, and work together to bridge achievement gaps (Mainzer et al., 2022).

1.3 Training programs

The training programs received by EBPs implementers play an important role in their success (Alhossein, 2021). Research indicates the urgent need for targeted training in leading and implementing EBPs (Stadnick et al., 2019). Although these programs are significant, they have limitations. For instance, in one study, school leaders, teachers, and student service officials who received scarce training showed a clear decline in the frequency of EBPs' use, while a high percentage of educational professionals reported that they did not feel confident in their ability to implement EBPs (Alicyn Ferrell, 2006). Additionally, teachers described in-service EBP training programs as "inappropriate" or "not appropriate at all" (Larraceleta et al., 2022), which means that most training programs have left novice teachers unprepared to implement EBPs (Alghamdi, 2021b). Thus, training programs should be subject to rigorous controls and standards to achieve their goals (Stephenson et al., 2023).

Several strategies have been used in EBP training. A prior study indicated that the implementation strategy providing ongoing consultation/training was rated as very important, the monitoring progress strategy used in implementation efforts was rated as important but less feasible, conducting educational meetings and changing the environment was rated as feasible but less important, and building partnerships to support implementation was rated as less important and feasible; meanwhile, there was both convergence and divergence in mixed methods results (Moore et al., 2024). Additionally, the evidence-based dialogic practices in which special education teachers are trained have been found to play a positive role in integrating students with disabilities into classrooms, which enhances inclusive education (Rodríguez-Oramas et al., 2021).

1.4 The current situation in Saudi Arabia

In the Kingdom of Saudi Arabia, many studies have been conducted to assess teachers' knowledge and use of EBPs; their results have indicated that the level of the former ranged between moderate and high (Alhossein, 2021; Almalki, 2021; Alrubaian, 2022), while that of the latter was high (Alturaifi and Alhossein, 2022); additionally, teachers' attitudes toward EBPs have been found to be positive (Alotaibi, 2022).

The administrative and leadership structure of special education schools and programs consists of the school leader, the school vice dean for educational affairs, the school vice dean for school affairs, and the school vice dean for student activity affairs (Saudi Ministry of Education, 2016). Students who receive special education are provided with an individualized education program that identifies their needs, goals, and services (Reich, 2010), while school-based providers are encouraged to achieve individualized education program goals using EBPs. The individual educational plan team is formed and headed by

the school leader or their representative, the vice dean for educational affairs, special education teachers, general education teachers, student counselors, social workers and other specialists, students' guardians, and the students themselves, provided that some special student conditions are met (Saudi Ministry of Education, 2016).

Accordingly, research addressing the administrative and leadership requirements for implementing EBPs is scarce. Little is known about the types of administrative and leadership behaviors that school leaders exhibit and how these behaviors affect the context of implementing these practices, as well as the types of leadership roles that are essential for enhancing implementation (Stadnick et al., 2019; Harvey et al., 2020). However, the importance of leadership in implementation science has received only limited attention in the field of EBPs (Reichenpfader et al., 2015), which means that there is an urgent need for research that uses quantitative methods to develop a more complete understanding of the barriers and facilitators that affect their implementation (Barry et al., 2020). Moreover, research on the training of school principals to implement these practices and identify their knowledge about them and barriers related to their implementation is limited (Pauling et al., 2023), as there is a lack of research on EBPs' implementation for classroom management (Hepburn and Beamish, 2019).

Therefore, the current study aims to fill this gap in the literature by identifying the administrative and leadership requirements necessary for the successful implementation of EBPs with students with disabilities, from teachers' perspective. Therefore, this study addresses EBPs in a different cultural environment with its own determinants, which are reflected in the application of these practices, as there is a difference in the method of selecting leaders and school principals and training them during service. There are differences in the educational environment, administrative regulations, legislation, and decisions regarding the application of these practices, in addition to the organizational structure of school administration; different organizational, leadership, and administrative contexts; and the culture of families of students with disabilities in relation to EBPs. Additionally, students' education level and disability category may influence administrative and leadership decision-making.

Therefore, this study aimed to determine the availability of administrative and leadership requirements for implementing EBPs with students with disabilities, from teachers' perspective, to determine the differences in the availability of these requirements, depending on students' disability category and academic stage. Accordingly, this study aimed to answer the following questions: (1) "What is the availability of administrative and leadership requirements for implementing EBPs in special education programs?" (2) "Does the availability of administrative and leadership requirements for implementing EBPs in special education programs differ vis-à-vis teachers' perspective depending on students' disability category?" and (3) "Does the availability of administrative and leadership requirements for applying EBPs in special education programs differ vis-à-vis teachers' perspective depending on students' academic stage?"

2 Materials and methods

2.1 Participants

The study sample ($N = 243$) was randomly selected from male and female special education teachers in the city of Riyadh, Saudi Arabia. All participants worked in government schools during the academic year 2023–2024. Table 1 shows participants' demographic characteristics.

Table 1 shows the number of male and female teachers, their distribution in the primary and middle levels, their distribution according to disability category (ID, ASD, LDs), the number of years of experience, and the educational qualifications they hold.

2.2 Instrument

A questionnaire on the administrative and leadership requirements for implementing EBPs in special education programs was prepared to determine the availability of administrative and leadership requirements for implementing EBPs, from teachers' perspective. Its preparation involved several steps, including a review of previous studies. Various tools were used, including the 24-item Evidence-Based Practice Questionnaire, which assesses health professionals' attitudes toward, knowledge of, and use of EBPs (Rice et al., 2010); the 15-item Evidence-Based Practice Attitude Scale, which was developed based on consultation with mental health service providers and researchers working in children's services (Merle et al., 2023); the 50-item Evidence-based Practice Attitude Scale, which was developed to assess mental health and social service providers' attitudes toward EBPs (Rye et al., 2017); and the Implementation Climate Scale (Ehrhart et al., 2019), which consists of 18 items and measures six dimensions of implementation climate; they focus on EBP, educational support for EBP, recognition for EBP, rewards for EBP, selection for EBP, and selection for openness.

The questionnaire consisted of two main parts: the first part obtained general data and such as the educational stage in which the teachers work, the category of disability that they teach, their years of experience, their academic qualifications, and their consent to participate. For the purposes of the current study, while the second part included items related to the administrative and leadership dimensions, the final version of the questionnaire consisted of 20 items, with scores ranging between 20 and 100. All items in the questionnaire were positive and were answered on a five-point scale

TABLE 1 Teachers' demographic characteristics.

Variables		Frequency	%
Gender	Men	207	85.2
	Women	36	14.8
School stage	Primary school	192	79
	Middle school	51	21
Distribution of teachers according to the program in which they work	Intellectual disability	60	24.7
	Autism spectrum disorder	115	47.3
	Learning difficulties	68	28
Teaching experience (years)	From 5 to less than 10 years	53	21.8
	From 10 to less than 15 years	110	45.3
	More than 15 years	80	32.9
Educational qualification	Bachelor's degree	160	65.8
	Master's degree or higher	83	34.2

(1–5) regarding requirements' availability: "non-availability," "low availability," "moderate availability," "high availability," and "very high availability." A high score indicates high availability of the administrative and leadership requirements for EBPs, while a low score indicates a low availability. Questionnaires were administered to a sample of (136) male and female teachers of students with disabilities. They were randomly selected from the society of the study for the sake of validating the psychometric properties of the questionnaire; it is noteworthy to mention that they were latter on discarded form the final application of the tools of the study in order not to be impacted by the calculations of the psychometric properties. Thus, the final sample of the study consisted of 243 male and female teachers, on whom the questionnaire was applied after verifying its psychometric properties. The psychometric properties of the questionnaire were verified by calculating the internal consistency of the questionnaire items and the correlation coefficients between each item and the total questionnaire score. Statistical analysis of the scores using SPSS-25 software showed that the values of the correlation coefficients ranged between 0.504 and 0.771. The score of each item and the total score were significant at a level of 0.01, which indicated the internal consistency of the questionnaire. The reliability coefficient of the questionnaire was calculated using the split-half method; the overall reliability coefficient of the questionnaire reached 0.892, while this value, when corrected by the Spearman-Brown equation, reached 0.940, which confirms the stability of the questionnaire.

2.3 Data collection and analysis

This study relied on a descriptive approach, and related data were collected by preparing an electronic questionnaire in Google Forms, after obtaining the approval of the Saudi Ministry of Education to use it with teachers. The link to the questionnaire was sent to school principals through the school's official email, and the Ministry of Education sent a link to the questionnaire to schools through its official mail, where school principals distributed it to the teachers. After completing data collection, the data were statistically analyzed using SPSS-25 software. Statistical methods such as the arithmetic mean and standard deviation were employed to identify the availability of administrative and leadership requirements, the Kruskal-Wallis test was used to identify differences between groups, and the Mann–Whitney test was employed as well.

3 Results

Regarding question 1 ("What is the availability of administrative and leadership requirements for implementing EBPs in special education programs?") The arithmetic means and standard deviations of the teachers' responses to the questionnaire were calculated. The cell length for each level was set at 0.8, while the availability of the requirements was determined as follows: unavailability (1 to 1.79), low availability (1.80 to 2.59), moderate availability (2.60 to 3.39), high availability (3.40 to 4.19), and very high availability (4.20 to 5). The results are summarized in Table 2.

It is clear from Table 2 that the degree of availability of administrative and leadership requirements for implementing EBPs from the perspective of special education teachers ranged from moderate to high.

Regarding question 2 ("Does the availability of administrative and leadership requirements for implementing EBPs in special education programs differ vis-à-vis teachers' perspective depending on students' disability category?"), nonparametric statistics were used because of the lack of conditions for parametric statistics, the most prominent of which are the homogeneity of the sample members and the normality of the distribution, using the Kruskal-Wallis test for independent samples. Table 3 presents the pertinent results.

The level of significance was 0.027. This means that there were statistically significant differences ($p < 0.05$) between the average grades of the three groups (ID, ASD, LDs). To determine the administrative and leadership requirements for implementing EBPs in special education programs and to identify the differences between the three groups, the groups were compared using the Mann–Whitney U test. Table 4 shows these results.

It is evident from Table 4 that there were no statistically significant differences between the mean rank of the scores of the ID and ASD groups, as well as the absence of statistically significant differences between the average ranks of the ID and LDs groups on the Administrative and Leadership Requirements Questionnaire. In addition, there were statistically significant differences at the 0.01 level of significance between the average scores of the ASD and LD groups on the questionnaire, in favor of the LD group.

To answer question 3 ("Does the availability of administrative and leadership requirements for applying EBPs in special education programs differ vis-à-vis teachers' perspective depending on students' academic stage?"), the Mann–Whitney U test was used as a non-parametric test owing to the nature of the sample. Table 5 presents the pertinent results.

It is clear from Table 5 that there were no statistically significant differences between the mean of rank of the sample members' scores on the Administrative and Leadership Requirements Questionnaire due to school stage (primary and middle school).

4 Discussion

This study examined special education teachers' views on the availability of the administrative and leadership requirements necessary to implement EBPs in special education programs, and identified the differences in the availability of these requirements based on students' school stage and disability category. To the best of our knowledge, this is one of the first studies to identify the availability of requirements for administrative and leadership implementation of EBPs in special education programs in the Kingdom of Saudi Arabia. The participating teachers reported that the availability of administrative and leadership requirements ranged between moderate and high, which may indicate the interest of officials and educational decision-makers in applying EBPs, as well as the presence of positive trends toward them.

The availability of administrative and leadership requirements to this degree may be due to the professional development programs that school workers participated in during services related to the application of EBPs—this is reflected in their effective application, in which experience plays a key role. School principals and educational leaders

TABLE 2 Arithmetic mean, standard deviation, and availability of the requirements.

N	Item	*M*	*SD*	Availability
1	The school administration has full knowledge and awareness of the nature of EBPs	3.52	1.158	High
2	The school administration has positive attitudes toward using EBPs in educating students with disabilities.	3.18	1.215	Moderate
3	The school administration is working to provide the necessary resources for implementing EBPs.	3.47	1.186	High
4	There is ongoing financial support provided to the school administration to implement EBPs in the classroom.	3.09	1.201	Moderate
5	An adequate number of trained teachers are available within the school to implement EBPs.	3.42	1.177	High
6	School principals adopt modern methods and strategies in teaching students with disabilities.	3.28	1.14	Moderate
7	The school administration supports constant cooperation and communication between teachers and families.	3.49	1.155	High
8	School principals receive training on various aspects of EBPs in educating students with disabilities.	3.29	1.199	Moderate
9	Education departments provide schools with adequate support to implement these practices.	3.26	1.186	Moderate
10	There are several legislations, laws, and decisions that support the implementation of EBPs.	3.42	1.127	High
11	The school administration has teams capable of implementing EBPs.	3.29	1.175	Moderate
12	There is an appropriate number of students with disabilities in the classroom.	3.44	1.131	High
13	Most teachers exhibit a readiness to implement EBPs.	3.53	1.092	High
14	The school working group is characterized by harmony among its members.	3.28	1.254	Moderate
15	The school administration gives teachers sufficient freedom to adapt the curriculum to meet the needs of students with disabilities.	3.44	1.209	High
16	The school administration has financial incentives for members of the EBP team.	3	1.236	Moderate
17	Sufficient time is available to implement EBPs.	3.3	1.198	Moderate
18	School principals have the ability to plan and implement EBPs.	3.09	1.175	Moderate
19	School principals have the ability to lead the implementation of EBPs.	3.33	1.149	Moderate
20	The school administration has sufficient assistant staff to implement EBPs.	3.37	1.158	Moderate

have spent a large amount of time as teachers, which has made them more knowledgeable and aware of EBPs and ways to overcome obstacles to their application. This may have led to the formation of positive attitudes toward them, as well as their adoption of modern methods and strategies in teaching students with disabilities, including EBPs. Alhossein's (2021) study conducted in the Kingdom of Saudi Arabia indicated that the training programs in which officials implementing EBPs have participated play an important role in their success; additionally, professional development programs for teachers are considered a predictor of the use of EBPs, as 33.8% of teachers of students with ASD participated in more than five professional development programs, while 33.3% of 3 to 5 participated in professional development programs. Thus, it is assumed that school principals and educational leaders participate in such programs because they are teachers who have been promoted to leadership positions. Winkler (2010) indicated that leadership behaviors are interactions and activities that leaders carry out with their subordinates and other people in their lives to influence the environment, their workplace, and culture in general. Moreover, leadership role theory explains that behaviors are influenced by leaders' previous experiences and their efforts to influence subordinates to achieve institutional goals. Similarly, Stadnick et al. (2019) indicated that the availability of administrative and leadership requirements necessary for the successful implementation of EBPs for people with disabilities is owed to the availability of a set of leadership behaviors linked to the organizational context and its connection to the climate of strategic implementation.

Teachers and administrative staff, their qualifications, experiences, and in-service training may play an important role in meeting administrative and leadership requirements, as the trained human element—i.e., teachers or administrators—is paramount for the success of EBP implementation, thus contributing to the availability of administrative and leadership requirements. Alhossein (2016, 2021) and Almalki (2021) showed that teachers of students with ASD and emotional and behavioral disorders exhibited average knowledge and use of EBPs, early childhood teachers exhibited an average knowledge of EBPs, and the level of the application of EBP parameters was high. Holmberg et al. (2008) found that employees' views on leadership behavior are related to their perceptions of the innovative organizational environment, job satisfaction, work outcomes, workload-related problems, and team and managerial support. Johansson et al. (2010) found that direct superiors 'support was significantly and positively associated with increased use of EBPs.

Furthermore, the support provided by the Saudi Ministry of Education to implement EBPs, as well as the interest of school administrators and educational departments that have students with disabilities led to the fulfillment of these requirements. The Ministry of Education sought to achieve the Kingdom's Vision 2030 in the field of education for people with disabilities; consequently, the Saudi Ministry of Education published a new executive framework for reforming teacher preparation programs (Planning and Development Agency Department, Ministry of Education, 2018), which aims to improve the quality of special education teachers' training by developing teacher training programs and focusing on the use of EBPs, which is beneficial for students with disabilities, as shown by prior research (Alghamdi, 2021a) and the present study.

TABLE 3 Results of the Kruskal-Wallis test and its level of significance.

Questionnaire	Disability category	*N*	Mean rank	Values of the Kruskal-Wallis test	Sig
Administrative and leadership requirements	ID	60	118.98	7.203	0.027
	ASD	115	112.38		
	LDs	68	140.93		
	Total	243			

TABLE 4 Mann–Whitney test results for differences between groups according to the disability category.

Disability category	ID	ASD	LDs
ID	----	−0.664	−1.875
ASD		----	−2.586**
LDs			----

Regarding the question of whether there are differences in the availability of administrative and leadership requirements for implementing EBPs in special education programs, from special education teachers' perspective, due to students' disability category (ID, ASD, and LDs), the results of the statistical analyses showed that there were significant differences (0.05). This may be due to the characteristics of students' disabilities, the degree of their severity, the comorbid disorders of the disability, the medications that students take, the availability of resources they need as disability severity increases, and the educational, training, and rehabilitation needs of students. The severity of students' disability imposes multiple restrictions on the application of EBPs, which requires the availability of additional resources—such as a highly trained staff—which may represent a burden on the management and leadership vis-à-vis EBPs.

The results showed that there were statistically significant differences (0.01) between the average scores of the ASD and LDs groups on the administrative and leadership requirements questionnaire, in favor of the LDs group. This may be because ASD is a neurodevelopmental disorder that affects various aspects of students' development, as students with ASD require more specific educational, training, rehabilitative, transitional, self-care services, and independence skills than students with LDs, which represents a burden on the planning and implementation of EBPs. ASD imposes significant restrictions on the implementation of EBPs because it requires specific sources, means, and quality resources; a large amount of time to implement EBPs; and appropriate intervention characteristics (Barry et al., 2020; Almutlaq, 2022). Some EBPs require more time and effort from teachers to implement (Silveira-Zaldivar and Curtis, 2019; Alghamdi, 2021b). Applying complex intervention procedures poses significant limitations to the implementation of EBPs, while problems related to the rapid adoption and abandonment of programs and practices involving ASD are common because of the ambiguity of various factors (Pauling et al., 2023). Meanwhile, the size of student enrollment in special education schools is negatively related to the availability of resources and implementation climate (Moore et al., 2021).

Moreover, the results indicated that there were no statistically significant differences in participants' grades according to school stage (primary or middle school). This can be explained by the fact that the students in both groups were in childhood; thus, their needs did not differ significantly, as is the case in later stages. We found it difficult to administer the questionnaire to high school teachers; thus, we limited its application to primary and middle school teachers, due to the few numbers of the programs dedicated to students with disabilities in this stage, which lead to a small number of teachers of students with disabilities.

It is worth noting that this study has several limitations. The administrative and leadership requirements necessary to implement EBPs in the Kingdom of Saudi Arabia are specific to this region, which is an environment with its own cultural, social, and economic characteristics. There are various factors that affect the availability of these requirements, including the general educational environment, the organizational environment, the method of selecting and preparing school principals and educational leaders, and their training during service. These factors play an important role in the availability of these requirements. Additionally, decisions related to the application of EBPs and the support provided by the Ministry of Education and Educational Administration may have a direct impact on the generalization of the study results to different cultural contexts. Future research should include a wide range of studies in diverse cultural contexts.

5 Conclusions and recommendations

This study is one of the first in the Arab world—in the Kingdom of Saudi Arabia, specifically—to examine the availability of administrative and leadership requirements for implementing EBPs in special education programs. This study provides a clear perception of the availability of these requirements from teachers' perspective, as they are the agents directly implementing these practices. Additionally, it provides a clear visualization of the variables that may affect the availability of these requirements: students' school stage and disability category. This study developed a questionnaire through which the availability of administrative and leadership requirements for implementing EBPs could be identified from teachers' perspective.

The study highlights the significance of administrative and leadership requirements in successfully implementing EBPs with students with disabilities. It emphasizes the necessity of training employees in these practices and providing leadership that supports their application. The results offer educational leaders, decision-makers, and policymakers insights into the administrative and leadership requirements essential for implementing EBPs for students with disabilities.

The results of the study emphasize the importance of conducting further research on the availability of the aforementioned requirements from school principals' and educational leaders' perspective. Moreover, future studies should

TABLE 5 Mann–Whitney test results for differences in administrative and leadership requirements according to the educational level (primary/middle school).

Questionnaire	School stage	*N*	Mean rank	Sum of ranks	*Z*	Sig
Administrative and leadership requirements	Primary	192	125.03	24005.00	−1.303	0.193
	Middle	51	110.61	5641.00		

include larger samples, at different educational levels, and with different categories of teachers of students with disabilities. Future studies could also use methodologies other than the descriptive approach, such as the qualitative approach and the mixed method. Additionally, researchers could examine the availability of administrative and leadership requirements for applying EBPs at the high school level.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

AA: Writing – review & editing. MA: Writing – review & editing. ME: Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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