

Educational transition outcomes of children and adolescents with clinically relevant emotional or behavioural disorders: results of a systematic review

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Educational transitions are associated with significant changes. If students cannot overcome these challenges, their well-being and motivation may be impaired. Students with clinically relevant emotional or behavioural disorders (EBDs) are at risk for negative transitional experiences. We conducted a systematic review summarising transitional outcomes of students with EBDs. After an electronic search in eight scientific databases, 4,930 publications were screened against six inclusion criteria. Two coders assessed the eligibility of 181 full-texts. We included k = 22 studies published in English or German (1988–2017). Students with autism (k = 15) and transitions out of school (k = 13) were examined most frequently. Well-being, achievements, social participation, support and expectations were observed. Poor well-being and social difficulties were prevalent, but often adjusted over time. The results are limited by the inclusion criteria and search procedures. Nevertheless, the review closes a research gap and has implications for the implementation of interventions and a supportive transition environment for students with clinically relevant EBDs. Further research on individual changes and supportive approaches during transitions is needed.

Key words: educational transitions, EBD, emotional or behavioural disorders, children, adolescents, school, autism, ADHD

Introduction

According to Jindal-Snape (2010), educational transitions comprise transfers from one educational context to another within one educational system (for example, from primary to secondary school) as well as between educational institutions (for example, from special to mainstream education). Educational transitions are characterised by the accumulation of various stress factors and require an adjustment to new peers, teachers and procedures, as well as to altered behavioural expectations and a changed school climate (Lester & Cross, 2015; Lester et al., 2013; Newman et al., 2007; Pearson et al., 2017). A successful transition can act as a protective factor for the psychosocial well-being of children and adolescents (Hughes et al., 2013). However, if students cannot overcome the challenges of educational transitions, impaired social and emotional well-being as well as a decline in learning outcomes and academic motivation may be among the consequences (Akos & Galassi, 2004; Hammond, 2016; Holcomb-McCoy, 2007).

For most children, the adjustment process is completed after one year in the new school environment. While many students successfully meet the challenges of educational transitions and continue to display a positive development after transitioning (Lucey & Reay, 2000), children and adolescents with clinically relevant emotional or behavioural disorders (EBDs) – that is, psychological disorders in childhood and adolescence that can be diagnosed according to classification systems such as the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; APA, 2013) or the *International Classification of Diseases and Related Health Problems* (ICD-10; WHO, 1992) – are at risk for negative transitional experiences. Various studies have documented the specific challenges of educational transitions for children and adolescents with EBDs from the perspective of parents (for example, Buchanan et al., 2016; Connolly & Gersch, 2016), teachers or school staff (for example, Beamish et al., 2014; Meiring et al., 2016), therapists (Derenne, 2013) and employers (Walsh, 2010). For instance, parents of children with autism spectrum disorders (ASD) described a ‘struggle with the educational system’ (Connolly & Gersch, 2016) while trying to place their child in an adequate school. Teachers stated that while an effective communication between the school and the parents of children with EBDs was especially vital for a successful transition, it was not always a given (Buchanan et al., 2016).

Students with clinically relevant EBDs themselves were rarely examined during educational transitions. Meta-analyses and reviews consistently revealed poorer academic achievements with respect to marks, graduation level

and rates of early drop-out, exclusion, suspension and ‘grey exclusion’ in students with EBDs compared with their peers without clinically relevant EBDs (Hendricks & Wehman, 2009; Reid et al., 2004). According to the National Autistic Society (2019) in the UK, ‘grey areas’ of exclusion comprise informal or internal exclusions ‘to cool off’ or for disciplinary reasons, part-time attendance, managed moves for a ‘fresh start’ in a different school and excluding students from school trips or afterschool clubs. Stoep et al. (2003) demonstrated that overall 44% of students who fail to complete school are adolescents with clinically relevant EBDs. Landrum et al. (2004) analysed data from the US Department of Education over a long period and found an increasing trend in the drop-out rates among students with clinically relevant EBDs. Studies on the psychological outcomes of students with clinically relevant EBDs during educational transitions are scarce.

By contrast, negative transitional experiences have often been examined in children and adolescents showing subclinical depressive symptoms (for example, Newman et al., 2007; Rueger et al., 2014), substance abuse (for example, Burdzovic & Jackson, 2015; Rao et al., 2000), anxiety (for example, Neal et al., 2016) and aggressive or externalising behaviour (for example, Chang et al., 2011; Shi & Xie, 2012) in the period between kindergarten and leaving school. Some studies demonstrated an increase in depressive symptoms (Newman et al., 2007) and alcohol consumption (Burdzovic & Jackson, 2015) in vulnerable students after educational transitions.

It is sufficiently probable that adverse educational transitions among students with clinically relevant EBDs pave the way for poor well-being and academic performance at school and, moreover, for worse outcomes in their further education and later employment. These considerations point to the need for an empirically substantiated analysis of observations and experiences of students with clinically relevant EBDs during educational transitions. An overview of empirical findings concerning children and adolescents with clinically relevant EBDs could provide important information about their special needs and how to create an enabling and supportive environment, as well as their similarities to and differences from students without clinically relevant EBDs. Unfortunately, the literature reviews on educational transitions published so far have focused on students with special needs in general (for example, Hughes et al., 2013), students with intellectual disabilities (for example, Young-Southward et al., 2017) or students with hearing impairments (Davis & Bullis, 1990). Other literature reviews have summarised empirical findings for separate clinically relevant EBDs such as ASD (for example, Marsh

et al., 2017) or for individual educational transitions such as leaving school (for example, Wolgemuth et al., 2016).

The current systematic review aims to close the research gap in literature reviews covering common transition-related outcomes in students with diagnosed clinically relevant EBDs during all forms of educational transition. It intends to provide an overview of existing empirical findings on psychological and academic outcomes of students with clinically relevant EBDs up to the age of 25 years that are not influenced by interventions during educational transitions between kindergarten and vocational and higher education, and to identify possible needs and starting points for interventions.

Method

Search strategy

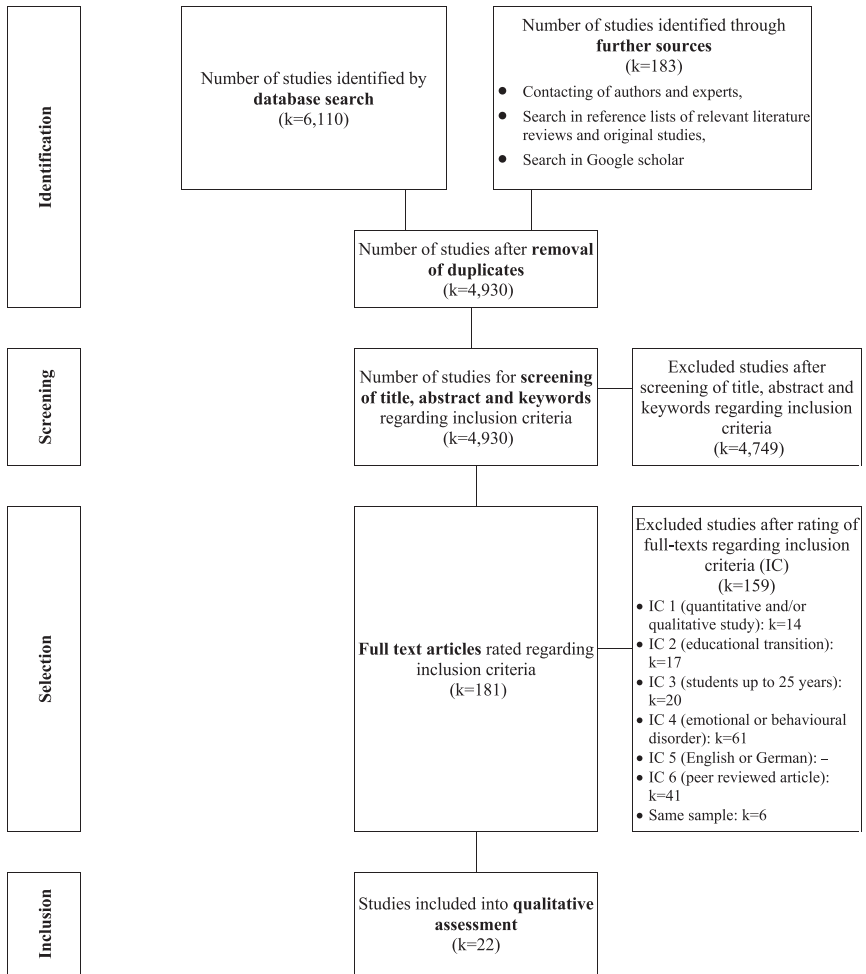
We searched for original studies published in journals in German or English up until 4 November 2017, using the following eight electronic databases accessible to us under licenses purchased by our institutions: Medline, PsycINFO, CINAHL, BIOSIS, ERIC, ASSIA, Fachportal Paedagogik and PSYINDEX. We used the previously tested, combined and partially truncated search terms or MeSH-terms ‘transition*’ and ‘school*’ and (‘social*’ or ‘emotional*’ or ‘psychological*’ or ‘mental*’) and (‘development*’ or ‘disorder*’ or ‘special educational need*’ or ‘additional support need*’ or ‘impairment*’ or ‘disabilit*’ or ‘illness’ or ‘handicap*’ or ‘learning difficult*’). Additionally, the search terms ‘Uebergang’ and ‘Schul*’ and (‘sozial*’ or ‘emotional*’ or ‘psychisch*’ or ‘mental*’) and (‘Entwicklung*’ or ‘Stoerung*’ or ‘krank*’ or ‘Foerderbedarf’ or ‘Beeintraecht*’ or ‘Unterstuetzungsbedarf’ or ‘Lernschwierigkeit*’) were used in the German databases Fachportal Paedagogik and PSYINDEX. This led to the identification of 6,110 results, from which 1,363 duplicates were removed (see Figure 1).

In order to reduce publication bias, reference lists of relevant studies and literature reviews were searched manually, a Google Scholar search was implemented, and the authors of relevant studies were asked to supply further publications in addition to the database search. Using these additional search strategies, 183 publications were found, resulting in a total of 4,930 identified publications.

Data acquisition, coding and quality assessment

Following the guidelines for the implementation and analysis of systematic reviews (Centre for Reviews and Dissemination, 2009; Moher et al., 2009;

Figure 1: PRISMA flow diagram for the presentation of the study selection process according to Moher et al. (2009)



Higgins et al., 2019), the 4,930 identified publications were assessed by one reviewer regarding conformity of title, keywords or abstract with the six inclusion criteria (see Figure 1) in a first step (screening). Each inclusion criterion was rated as ‘yes’ (is present), ‘no’ (is not present) or ‘unclear’ (missing or inconclusive information). Studies not meeting at least one inclusion criterion were excluded from the review.

In a second step (selection), the full texts of 181 publications were included after the screening result had been assessed by two independent reviewers. The reviewers' assessments in the full texts matched in 98% of publications. Thus, following Bortz and Döring (2006), the inter-rater reliability in the screening can be described as almost perfect agreement, after correcting for the proportion of coincidental matches (Cohen's kappa coefficient $\kappa = 0.92$). The journal and the authors of assessed publications were visible to the reviewers in both steps. Disagreements in assessment were discussed and, if necessary, a third reviewer was consulted until a consensus was reached. When the same sample was examined in two publications meeting the inclusion criteria, only the publication with the greater amount of relevant data for the research question was included in the review.

After this selection, 22 publications were included. Two reviewers then coded the full texts regarding their publication characteristics, study characteristics and results, as well as the quality of the studies. The assessment of study quality was implemented using the quality criteria of the Cochrane Collaboration (Higgins et al., 2019). Three items for internal and external validity were used (1: operationalisation of diagnosis in accordance with suggested criteria; 2: diagnosis via outcome-specific or other reliable and objective assessment instruments; and 3: representativeness of the population examined). Quality criteria were rated on the scale 'criterion met', 'criterion not met' and 'unclear or missing information' and summarised as an overall quality score. A high study quality was assigned if all three quality criteria were met. Studies were rated as being of medium quality if one quality criterion was not met or not clearly described, and as being of low quality if at least two criteria were not met or remained unclear. The study quality was rated as being high for one study, medium for 13 studies and low for eight studies (see Table 1).

Results

We analysed the objectives, study design, samples, methods and reported results of 12 quantitative, eight qualitative and two mixed-methods studies published between 1988 and 2017 (see Table 2).

Characteristics of the studies included

The majority of studies included were conducted in the UK ($k = 12$). Nine studies were carried out in the USA and one study was conducted in Australia. The sample sizes of the studies included ranged between $n = 5$ and $n = 830$ with a total of $N = 2,267$ students between the ages of eight and 25 years examined across all studies. For one study, the sample size was unknown.

Table 1: Methodological quality of included studies (k = 22)

Author (year)	Internal validity		External validity	Global assessment of methodological quality
	Operationalisation of EBD diagnosis in accordance with DSM or ICD criteria	Measurements via outcome-specific or other reliable and objective assessment instrument		
Blase et al. (2009)	n.a.	+	-	Low
Browning et al. (2009)	+	+	-	Medium
Camarena and Sarigiani (2009)	+	+	-	Medium
Chiang et al. (2013)	+	n.a.	+	Medium
Dann (2011)	+	n.a.	-	Low
Dillenburger et al. (2016)	+	n.a.	n.a.	Low
Dillon & Underwood (2012)	+	+	-	Medium
Fortuna (2014)	+	+	-	Medium
Frank et al. (1991)	n.a.	+	+	Medium
Hannah & Topping (2013)	+	n.a.	-	Low
Hebron (2017)	+	+	-	Medium
Howard et al. (2016)	+	+	n.a.	Medium
Jindal-Snape et al. (2006)	+	-	-	Low
Mandy et al. (2016)	+	+	n.a.	Medium
Mitchell & Beresford (2014)	n.a.	+	-	Low

(Continues)

Table 1: (Continued)

Author (year)	Internal validity			Global assessment of methodological quality
	Operationalisation of EBD diagnosis in accordance with DSM or ICD criteria	Measurements via outcome-specific or other reliable and objective assessment instrument	External validity	
Neal & Frederickson (2016)	+	+	-	Medium
Neel et al. (1988)	n.a.	n.a.	+	Low
Peters & Brooks (2016)	+	+	-	Medium
Schaefer et al. (2017)	+	+	-	Medium
Taylor et al. (2017)	+	+	+	High
Zendarski et al. (2017)	+	+	n.a.	Medium
Zigmond (2006)	n.a.	n.a.	-	Low

Notes: EBD = emotional and behavioural disorders; DSM = *Diagnostic and Statistical Manual of Mental Disorders*; ICD = *International Classification of Diseases*; + quality criterion met; - quality criterion not met; n.a. = quality criterion unclear/hot rateable; high study quality = three quality criteria were met; medium study quality = one quality criterion was not met or remained unclear; low study quality = at least two criteria were not met or remained unclear.

Table 2: Description of included studies (k = 22)

Author (year)	Subject of the study	Study type (data collection method) [perspective]	Study population (country)	Sample size ^a (n; % female)	Age in years mean (SD) [range]	EBD	Examined educational transitioning/attending grades]
Blase et al. (2009)	Examination of academic, social and emotional functioning of students with self-reported ADHD, adjustment in relation to medication treatment, predictive association between ADHD and students' adjustment	Quantitative (web-based survey, longitudinal survey) [college students]	Study 1: undergraduate students from one public and one private university (USA) Study 2: students from same universities who completed the web-based survey during 1st and 4th semesters	153 (100; 66%)	n.a.	ADHD	Leaving secondary school [undergraduate students at university]
Browning et al. (2009)	Comparison of students with and without ASD in perceived stress and coping during transition	Qualitative (interview) [students]	Students in special and mainstream schools with special educational needs department (UK: England)	10 (2; 20%)	15.0 (n.a.)	ASD	Leaving secondary school [students in 11th Year]
Camarena and Sarigiani (2009)	Assessment of post-secondary educational aspirations, thoughts regarding obstacles/resources shaping educational achievement	Quantitative (semi-structured interviews) [adolescents, parents]	Adolescents eligible for special education services and with significant social deficits and their families (USA)	21 (1; 5%)	14.7 (2.0) [12–19]	ASD	Leaving secondary school; [students in 6th–12th Year; mean = 9.10, SD = 1.97]

(Continues)

Table 2: (Continued)

Author (year)	Subject of the study	Study type (data collection method) [perspective]	Study population (country)	Sample size* (n; % female)	Age in years mean (SD) [range]	EBD	Examined educational transition [transitioning/attending grades]
Chiang et al. (2013)	Factors associated with participation in employment for students with ASD	Quantitative, longitudinal (interview, survey) [students, parents]	Representative national cohort of students in secondary schools (USA)	830 (n.a.)	n.a. [13–16]	ASD	Leaving secondary school [n.a.]
Dann (2011)	Views and experiences regarding inclusion into secondary phase schooling for students with ASD	Qualitative (semi-structured interviews, focus groups) [students, parents, school members]	Students who met criteria for admission to specialist secondary provision for ASD attached to a mainstream secondary school (UK; England)	6 (1; 17%)	n.a.	ASD	Primary school–secondary school [transition from 6th Year to 7th Year]
Dillenburger et al. (2016)	Qualifications, destinations; comparison of students with and without ASD in further and higher education enrolment, retention and achievements	Quantitative (email-based questionnaire) [students]	Data on students in mainstream schools (UK)	n.a.	n.a.	ASD	Leaving secondary school [n.a.]

(Continues)

Table 2: (Continued)

Author (year)	Subject of the study	Study type (data collection method) [perspective]	Study population (country)	Sample size* (n, % female)	Age in years mean (SD) [range]	EBD	Examined educational transition [transitioning/attending grades]
Dillon & Underwood (2012)	Issues and concerns of parents of children with ASD at transition to secondary education; key factors for a successful transition experience for the student	Mixed methods: quantitative and qualitative (focus groups, interviews) [parents]	Students in full-time mainstream primary and secondary schools (UK)	15 (2; 13%)	pre: n.a. [11–13] post: n.a. [12–14]	ASD	Primary school–secondary school [transition from 6th Year to 7th Year]
Fortuna (2014)	Socio-emotional well-being and functioning of students with ASD during transition	Mixed methods: quantitative (questionnaire) and qualitative (easy-to-complete diary over three weeks, semi-structured interview) [students, parents, school members]	Students in full-time mainstream primary schools (UK; England)	5 (2; 40%)	n.a.	ASD	Primary school–secondary school [transition from 6th Year to 7th Year]
Frank et al. (1991)	Comparison of graduated students and drop-outs in employment and general adult status	Quantitative (interview) [students]	Students in two classes of special education programmes (USA)	200 (59; 30%)	n.a.	n.a.	Leaving secondary school [one year after scheduled graduation from high school]

(Continues)

Table 2: (Continued)

Author (year)	Subject of the study	Study type (data collection method) [perspective]	Study population (country)	Sample size* (n, % female)	Age in years mean (SD) [range]	EBD	Examined educational transition [transitioning/attending grades]
Hannah & Topping (2013)	Views of students and parents about secondary school (expectations, reality, feelings associated with transition, support provided)	Quantitative, longitudinal (questionnaire, group interview, semi-structured interviews) [students, parents]	Students in mainstream primary schools (UK; Scotland)	8 (0%)	11 years 8.9 months (4.6 months) [11–12]	ASD	Primary school–secondary school [transition from 7th Year to 8th Year]
Hebron (2017)	Comparison of students with and without ASD in school connectedness during transition	Quantitative, longitudinal (paper-and-pencil questionnaire) [students]	Students in special and mainstream primary schools (UK; Wales, England)	28 (5; 18%)	n.a.	ASD	Primary school–secondary school [transition from 6th Year to 7th Year; last assessment in 8th Year]
Howard et al. (2016)	Comparison of students with and without ADHD in progression of impairment, parent involvement during transition and college attendance	Quantitative, longitudinal (paper-and-pencil questionnaire [parents, students])	Students recruited into Multimodal Treatment of ADHD Study (USA)	548 (n.a.)	10.4 (n.a.) [8–13]	ADHD	Leaving secondary school [n.a.]
Jindal-Snape et al. (2006)	Transition routes, support arrangements, evaluations of transition arrangements, perspective on new school	Qualitative (interview) [students, parents, professionals (teachers, psychologists, therapists)]	Students recruited by psychological service (UK; Scotland)	5 (0%)	12.4 (0.49) [12–13]	ASD	Primary school–secondary school [transition from 7th Year to 8th Year]

(Continues)

Table 2: (Continued)

Author (year)	Subject of the study	Study type (data collection method) [perspective]	Study population (country)	Sample size* (n; % female)	Age in years mean (SD) [range]	EBD	Examined educational transition [transitioning/attending grades]
Mandy et al. (2016)	Psychopathology, adaptive functioning and peer victimisation during transition	Quantitative, longitudinal (paper-and-pencil questionnaire) [students, parents, teachers]	Students in mainstream primary schools (UK)	28 (3; 11%)	11.3 (0.40) [n.a.]	ASD	Primary school—secondary school [transition from 6th Year to 7th Year]
Mitchell & Beresford (2014)	Support needs during transition	Qualitative (semi-structured interview) [students]	Students in special and mainstream secondary schools (UK; England)	18 (4; 22%)	18.6 (2.5) [15–25]	ASD	Secondary school—college/6th Year [transition from 11th Year to 12th Year]
Neal & Frederickson (2016)	Positive experiences and types of support during transition	Qualitative (semi-structured interview) [students]	Students in Year 7 schools taking part in larger research study (UK; England)	6 (1; 17%)	n.a.	ASD	Primary school—secondary school [transition from 6th Year to 7th Year]
Neel et al. (1988)	Adult adjustment of former students with severe behavioural disorders (SBD)	Qualitative (telephone interviews) [parents]	Special education students listed as having graduated or aged out of 21 school districts (USA)	160 (34; 21%)	n.a.	n.a.	Leaving school [12th Year to leaving school]
Peters & Brooks (2016)	Experiences of students with ASD before and during transition	Qualitative (questionnaire) [parents]	Students in 7th or 8th Year at a mainstream school (UK)	17 (3; 18%)	n.a.	ASD	Primary school—secondary school [students in 7th or 8th Year]

(Continues)

Table 2: (Continued)

Author (year)	Subject of the study	Study type (data collection method) [perspective]	Study population (country)	Sample size* (n; % female)	Age in years mean (SD) [range]	EBD	Examined educational transition [transitioning/attending grades]
Schaefer et al. (2017)	Adherence to medication during transition, barriers, support needs, impact on school performance	Qualitative (questionnaire, semi-structured interview) [students]	Students at public university (USA)	10 (3; 30%)	19 (0,47) [n.a.]	ADHD	Secondary school—college [first-year college students]
Taylor et al. (2017)	Changes of unstructured and structured social participation before and after high school; longitudinal and concurrent relations between social participation and internalising symptoms	Quantitative (structured observations, direct testing, questionnaires, interviews) [parents]	Students recruited through local clinics, autism-related research studies, support groups, service providers, and autism organizations for a large longitudinal study (USA)	36 (6; 17%)	18,7 (1,3) [17–22]	ASD	Leaving secondary school [within two years of leaving high school]
Zendarski et al. (2017)	Attitudes to school and suspension rates during transition, factors associated with attitudes to school and school suspension	Quantitative (paper-and-pencil questionnaire) [students, parents, teachers]	Students recruited from pediatric practices taking part in Attention to Sleep study (Australia: Victoria)	130 (14; 11%)	13,7 (1,1) [12–16]	ADHD	Primary school—secondary school [students in 1st and 3rd Year]
Zigmond (2006)	Employment and social participation rates	Quantitative (interview) [students]	Students with partial hospitalisation treatment in day-treatment schools (USA)	33 (12; 37%)	n.a.	n.a.	Leaving secondary school [students in 9th–12th Year]

Note: *Sample size of included students with clinically relevant emotional or behavioural disorder/s. EBD = emotional and behavioural disorder; n.a. = not available; ASD = autistic spectrum disorders; ADHD = attention deficit/hyperactivity disorder; SD = standard deviation.

Female participants accounted for between 0% and 66% of the samples assessed (MD = 18%). The large majority of studies focused on students with ASD (k = 15) and attention deficit/hyperactivity disorder (ADHD; k = 5). In three studies, the specific psychiatric diagnoses of the students were not reported. The studies examined the transition out of (secondary) school, for example, to pursue higher education or to begin employment (k = 12) or the transition from primary school to secondary school (k = 10). The studies included mainly acquired data using interviews (k = 15) and questionnaires (k = 9). Student (k = 17) and caregiver perspectives (k = 12) on students' transition-related outcomes were assessed most frequently. Five studies included the perspectives of teachers or other school members, while one study included psychologists' and therapists' reports.

Results on post-transitional outcomes

The transition-related outcomes presented in the studies included cover five domains:

1. well-being, stress or other mental health issues (k = 11);
2. academic and post-secondary achievements (k = 10);
3. social participation (k = 9);
4. impact of professional and parental support (k = 7);
5. expectations or goals (k = 5).

During and after educational transitions, stress (for example, Blase et al., 2009), social or academic concerns (for example, Browning et al., 2009), negative feelings (Hannah & Topping, 2013), depressive symptoms (Blase et al., 2009), emotional instability (Blase et al., 2009), anxiety (Peters & Brooks, 2016), substance abuse (Blase et al., 2009), low motivation (Zendarski et al., 2017) and adaptive functioning difficulties (Mandy et al., 2016) were found in students with clinically relevant EBDs. Some studies reported more depressive symptoms and concerns in students with clinically relevant EBDs compared with their peers (Blase et al., 2009), a high level of psychopathology (Mandy et al., 2016) or a worsening of symptoms during the transition period (for example, Howard et al., 2016). In contrast, other studies identified positive feelings (for example, Hannah & Topping, 2013) and a satisfactory adjustment or change in well-being over the course of the years following the transition (for example, Fortuna, 2014).

Compared with non-affected students or the overall average, students with clinically relevant EBDs displayed lower academic achievements, such as

lower Grade Point Averages (Blase et al., 2009) or higher suspension rates (Zendarski et al., 2017), and lower post-secondary achievements, such as lower rates of employment (Neel et al., 1988), participation in post-secondary programmes (Neel et al., 1988) or further education (Dillenburger et al., 2016), low rates of full-time jobs (Frank et al., 1991; Zigmond, 2006), as well as earnings mostly below the minimum wage (Zigmond, 2006). By contrast, Dillenburger et al. (2016) found similar rates of unemployment and higher education in students with and without ASD, while Frank et al. (1991) found that the majority of students with clinically relevant EBDs earn incomes above the minimum wage. Several significant predictors of academic or post-secondary achievements after educational transitions were identified:

1. student-related factors, such as gender, social skills, intellectual abilities or graduation;
2. family-related factors, such as household income or parental education;
3. school-related factors, such as provision of preparatory information, pre-transitional support, assigned spaces for students with EBDs or schools' independence (for example, Dann, 2011; Peters & Brooks, 2016; Zigmond, 2006).

Low levels of social participation or connectedness to peers, or other social difficulties, were found especially in the first months after transition among students with clinically relevant EBDs, whereas differences in social participation between students with and without EBDs as well as peer victimisation decreased during or after the first year after transitioning (for example, Dillon & Underwood, 2012). Various studies identified students' involvement in social (leisure) activities in school or community, but also a decline in participation in structured social activities after leaving school (for example, Frank et al., 1991; Peters & Brooks, 2016). Friendships, peer acceptance, peer pressure (for instance, to share medicine) and internalising symptoms, as well as experiences of structured activities before the transition, predicted social functioning after the transition (for example, Schaefer et al., 2017; Taylor et al., 2017).

During and after the transition, parents were a significant source of support for students with clinically relevant EBDs (for example, Mitchell & Beresford, 2014; Neal & Frederickson, 2016). Additionally, pre-transitional and individualised support by professionals focusing, first, on practical advice (such as (written) information, open days or school visits, meeting school staff, co-ordination), and second, on positive or emotional aspects of

the transition (such as discussions about positive aspects of the new school) were favoured (for example, Hannah & Topping, 2013; Neal & Frederickson, 2016). Delayed or incomplete support arrangements due to a lack of time or resources were criticised (Jindal-Snape et al., 2006). One study found that students with clinically relevant EBDs relied on themselves rather than on others when help was needed (Browning et al., 2009).

Students with clinically relevant EBDs exhibited various positive and negative expectations, interests and desires in relation to the new school, including greater independence, increased routine, more varied lessons or inclusion in school activities (for example, Camarena & Sarigiani, 2009; Hannah & Topping, 2013). Negative attitudes to the new school were predicted by depressive symptoms, poor supervision and devaluing education (Zendarski et al., 2017).

Discussion

The present review summarises the methods and findings of 22 original studies looking at the educational transitions of students with clinically relevant EBDs published worldwide. We found inconsistent results with regard to academic and post-secondary achievements, well-being and social participation, indicating that outcomes were below average but also approximately the same as the average for students without clinically relevant EBDs over time, particularly regarding well-being and social functioning. The studies included provided a strong indication that students with clinically relevant EBDs often have a worse start at the new school and need more time to adjust to the new learning context than students without such EBDs. These findings are highly concordant with the above-mentioned studies on students with clinically relevant EBDs, suggesting a high risk for negative transitional experiences, for example, with respect to lower levels of well-being, poorer academic performance and leaving school early. At the same time, students with clinically relevant EBDs are driven by positive expectations and the support of parents or professionals. Support arrangements were preferred when they included concrete actions and information or addressed positive feelings and the expectations of the students. Students and parents differ in their perception of the problem, particularly in the case of internalised behavioural disorders that may therefore be overlooked easily. Students with clinically relevant EBDs who had unsupportive parents, comorbid depressive symptoms, low social or self-management skills, cognitive disabilities or low socio-economic status were found to have the worst transition outcomes.

Certain limitations of the systematic review need to be considered. The results of the studies identified are difficult to compare systematically due to dissimilar research questions and methods. For example, access to electronic databases was limited by the licenses purchased by the institutions with which we were affiliated, so some relevant scientific databases, such as Scopus, were inaccessible for our systematic literature search. Empirical findings on educational transitions of students with clinically relevant EBDs are few and are characterised by methodological restrictions. The quality of the studies was rated as being low for eight out of 22 studies. In particular, studies on students from countries others than the USA, the UK and Australia, with clinically relevant EBDs besides ASD and ADHD, transitioning from kindergarten to primary school or between educational institutions, and longitudinal as well as representative cross-sectional studies, are missing or could not be found. The selected inclusion criteria and search procedures limited the results of the literature search. Furthermore, advantages or disadvantages of the school systems in the USA and the UK could be overemphasised. Whereas the transitions from primary to secondary school in the studies included mostly occurred from 6th Year to 7th Year or from 7th Year to 8th Year, in Russia and Germany, for example, students typically leave primary school after 4th Year. Differences in the transition-related challenges and opportunities could be assumed to be due to the students' different levels of development. Mays et al. (2018) examined German 4th Year students with a poor prognosis for their socio-emotional development over the course of a year during the transition from primary to secondary school and found a marginal change in academic self-concept in a pre–post comparison. For an intercultural validation of the available study results, further research is needed in other Western societies with different school systems as well as research in non-Western cultures. The publication bias towards publications with significant study results, the language restriction to German and English publications, content-related restrictions due to the selected search terms and inclusion criteria, as well as the individual reviewer bias during the screening and selection process, must be considered additional methodical limitations of this review. In addition to the above-mentioned additional search strategies, publication bias could be mitigated by including so-called 'grey literature', such as project reports or dissertations, as well as a wider range of publication languages.

Nevertheless, the results of this review are in accordance with the findings of surveys interviewing parents, teachers, therapists and employers; studies on students with subclinical symptoms; and reviews on the academic outcomes of students with clinically relevant EBDs emphasising the challenges

of educational transitions (for example, Buchanan et al., 2016; Derenne, 2013; Meiring et al., 2016; Walsh, 2010). In various studies, transitions that included both negative and positive experiences as well as positive transitions, progress and functional adjustments over time in students with clinically relevant EBDs were identified. Thus, our results allow processes and changes during educational transitions to be examined in a differentiated way by identifying risks and protective factors within students, parents, the social environment, schools and employers.

The findings provide important pointers for the development and implementation not only of interventions but also more inclusive and supportive school environments, and for the encouragement of familial support throughout transitions with the goals of preventing drop-outs or suspensions and enabling students with clinically relevant EBDs to realise their full potential. Comorbid internalisation problems can be assumed to be significant student-related risk factors for the successful transition of students with clinically relevant EBDs (for example, Taylor et al., 2017; Zendarski et al., 2017). These findings are in accordance with study results that identify depressive symptoms and severe emotional disturbances as relevant predictors for educational transitions (Rueger et al., 2014; Rylance, 1997). Programmes or training courses could convey techniques to improve coping with stress (for example, McAllister et al., 2017) and social skills (for example, Lochman et al., 2013). For instance, the preventive Coping Power programme for at-risk aggressive pre-adolescent children has proven to have short-term effects on anti-social outcomes (Lochman et al., 2013). Self-management skills could be improved by transition plans (for example, Roberts, 2010; Szidon et al., 2015) or specialised training courses (Durlak et al., 1994; Hoppe, 2004). Szidon et al. (2015) have developed a five-step plan (including the identification of transition goals, and the provision of opportunities to teach skills) for students with ASD, helping them to reach their post-secondary goals. Furthermore, dropping out, exclusion, suspension and 'grey exclusion' seem to be major issues for students with clinically relevant EBDs, meaning that there is an urgent need for interventions aimed at the prevention of dropping out, suspension or exclusion, as well as the provision of support for students with clinically relevant EBDs after leaving school prematurely. Students with clinically relevant EBDs can suffer interruptions in the teaching and learning process due to passiveness, inattentiveness, hyperactivity, outbursts of anger, aggressiveness or delinquent behaviour at school. Although the proactive handling of and situational response to disruptions are among the central aspects of pedagogical professionalism, teaching students with clinically

relevant EBDs and effective class management are neither firmly anchored in teacher training nor sufficiently implemented by teachers. Thus, handling challenging behaviours appears to be highly relevant to the training and professionalisation of teachers.

The results of this review also emphasise the importance of parents and other family members, for instance, through involved parenting. Rueger et al. (2014) have shown that maternal support has positive effects on students' depressive symptoms after a middle school transition. Accordingly, support arrangements should take the needs of parents and relatives into account and include family supervision, parent counselling or parent-child activities, especially for disadvantaged families. Van Ryzin et al. (2012) demonstrated that children whose parents participated in their Family Check-Up showed lower growth rates of family conflicts, anti-social behavior and involvement with deviant peers, as well as alcohol use, indicating that parents who are engaged in transition phases have multiple positive effects on their children's transition outcomes. According to Miller et al. (2003), student-, family- and community-related risk and protective factors could be ascertained during assessments or screenings prior to a transition, so as to assess the students' individual needs for standardised support.

Furthermore, the results of this review have implications for school staff and professionals providing transition services and post-transitional programmes. School characteristics that significantly influence transition success could be implemented to create a more supportive and inclusive school environment, including, for instance, preparatory information and pre-transitional support via school visits, career counselling and contacting potential employers or post-transitional programmes, structured social activities, and assigned spaces for students with clinically relevant EBDs. Schomaker and his colleagues (2015) evaluated and demonstrated the effectiveness of JobFit-Training, a preparatory school-based training programme for students with deviant prosocial behaviour who benefited from interventions particularly emphasising positive aspects of transitions. Similar results have been reported by Cook et al. (2012) who conducted two longitudinal field experiments on a brief values affirmation for African-American students during a key developmental transition from 7th to 8th Year. Approaches for transition management should also consider the positive effects of successful graduation and the negative impact of dropping out or being suspended (for example, Test et al., 2009).

This review has shown post-transitional short- and long-term changes in children with clinically relevant EBDs that should be taken into account both in support arrangements and in research. To create an inclusive environment, model projects could integrate individual approaches for pre-transitional assessment, personal future planning, individual education programmes, transition programmes and family activities, as well as academic, vocational and community placements, into an overall transition support concept for students with clinically relevant EBDs (for example, Cheney, 2012; Sansosti et al., 2017; Trainor et al., 2012). For instance, a study conducted in eight European countries has found that an inclusive environment, the involvement of both the child and parents in the transition process (for example, shared decision-making) and the way in which the transition was planned and organised have an influence on successful educational transitions for children with special educational needs (Ravenscroft et al., 2017). Further research on changes during transitions and on the effects of supportive transition approaches is needed, since transitions are likely to be a ‘make or break’ period in the academic development of students with clinically relevant EBDs.

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