published at: AWMF online
Das Portal der wissenschaftlichen Medizin

Guidelines Report

Autism spectrum disorders in childhood, adolescence and adulthood

Part 2: Therapy

Interdisciplinary S3 guideline of the DGKJP and the DGPPN
as well as the participating professional societies, professional associations and patient organisations

S3 guideline	AWMF Register Number:	028 - 047

Authors of the guideline report: Dr. Leonora Vllasaliu and Prof. Dr. Christine M. Freitag, Department of Psychiatry, Psychosomatics and Psychotherapy of Childhood and Adolescence, University Hospital Frankfurt am Main, Goethe University

1. Why is an ASD guideline important for Germany?
2. What is the primary goal of this guideline?
3. What methodological approaches underlie this guideline?
4. Which specialists and professional groups were involved and according to which criteria were the guideline, consensus and expert groups selected?
5. What is the validity period of the guideline?
6. Which system of evidence classification and which criteria for weighting the individual recommendations were chosen?
7. Which specialist, professional and personal groups are the guidelines aimed at, and what are their limits?

Chair of the steering group

Prof. Dr. Christine M. Freitag, DGKJP e.V.

Guidelines Coordinators

Prof. Christine M. Freitag, Dr. Leonora Vllasaliu

Project management at the University Hospital Frankfurt

Prof. Dr. Christine M. Freitag, Dr. Leonora Vllasaliu, Marianne Menze (until 03/2016), Magdalena Schütz (until 12/2015), Antoaneta Todorova (until 05/2018), Marvin Luh (since 08/2016, until 04/2019), Christopher Lalk (since 08/2018, until 09/2020)

Department of Psychiatry, Psychosomatics and Psychotherapy of Childhood and Adolescence & Frankfurt Autism Therapy and Research Center, University Hospital Frankfurt am Main, Goethe University

Steering committee

Dr. Thomas Bergmann, Dr. Uwe Büsching, F. Diekmann, Prof. Dr. Matthias Dose, Dr. Ekkehart Englert, Prof. Dr. Christine M. Freitag, Dr. Ulrich Hagenah, Regina Hartmann, Sara Hiebl, Dr. Helmut Hollmann, Prof. Dr. Inge Kamp-Becker, Dr. Barbara Ladwig, Claus Lechmann, Ingrid Löffler-Idel, Dr. Tobias Leppert, Silke Lipinski, Rudi Merod, Prof. Dr. Lutz Neugebauer, Friedrich Nolte, Prof. Dr. Michele Noterdaeme, Prof. Dr. Luise Poustka, Stephan Prändl, Dr. Christa Roth-Sackenheim, PD Dr. Tanja Sappok, Kristin Snippe, Ulrike Sünkel, Prof. Dr. Ludger Tebartz van Elst, Dr. Arne Schmidt, Prof. Dr. Judith Sinzig, Matthias Steffen, Dr. Leonora Vllasaliu, Prof. Dr. Dr. Kai Vogeley, Diana Will.

Methodological consulting and meta-analyses

Dr. Katrin Jensen (Institute of Medical Biometry, University Hospital Heidelberg)

Moderation of the consensus process

Prof. Dr. Ina B. Kopp (AWMF e.V.)

Contact address

Prof. Dr. Christine M. Freitag

Director, Clinic for Psychiatry, Psychosomatics and Psychotherapy of Childhood and Adolescence & Frankfurt Autism Therapy and Research Centre

University Hospital Frankfurt am Main, Goethe University

Deutschordenstraße 50, 60528 Frankfurt am Main, Germany

c.freitag@em.uni-frankfurt.de

Note from the authors of the guideline report:

This guideline report is an adaptation of the report already prepared for the diagnostic guideline. While a large part of the text corpus has remained the same, passages on the methodological procedure in particular have been adapted, since the procedure was adapted on the one hand due to the experience gained from the preparation of the first part and on the other hand due to the specific nature of the therapy guideline questions.

In addition, this guideline report also includes the special votes on individual recommendations of the following societies and a self-help group: Deutsche Musiktherapeutische Gesellschaft e.V. , Deutscher Fachverband für Verhaltenstherapie e.V. , German Society for Behaviour Therapy e.V. and Self-Help Group Autism Germany e.V.

Table of Contents

1 Rationale for the selection of the guideline topic

In Germany, until the publication of the first part of this guideline (LL) on diagnosis, there were no currently valid guidelines on autism spectrum disorders (ASD) in children and adolescents and no guidelines on ASD in adults. Differentiated knowledge about diagnostics and evidence-based therapy is not sufficiently available for many people who work with children, adolescents or adults with ASD and/or advise their families, as the disorder is often only represented to a small extent both in training and in the care landscape. In addition, there are hardly any specialized places in Germany[1] and there again very long waiting times, so that both patients and professionals need good information materials to be able to inform themselves about the scientific state of knowledge regarding diagnostics and therapy. The existing, well-documented evidence based on scientific studies, often conducted in English-speaking countries, is not yet sufficiently known in Germany. This concerns the area of diagnostics as well as the area of therapy of ASD. In order to improve the medical, psychiatric-psychotherapeutic and rehabilitative care of persons with ASD, broadly consented, evidence-based guidelines (S3) are therefore necessary for Germany. In order to create these, various German professional societies have been working on the creation of an S3 guideline on ASD since 2009. The first part on diagnosis has already been published (AWMF, 2016) and will [2]now be followed by the second part on therapy.

1.1 Goal orientation of the guideline

The following main objectives were pursued in the preparation of the therapy section of the S3 guideline:

1. Evidence-based, broadly consensual recommendations on effective therapeutic methods, as well as harmful methods that should not be used, for the treatment of ASD.
    a. across the lifespan (infancy/preschool age, primary school age, adolescence, adulthood)
    b. for ASD patients with different comorbid conditions (mental disorders, developmental disorders, intelligence impairment). The evidence-based treatment of

[1]In this context, practices and practice networks that have the necessary expertise are also considered to be specialised centres (see Chapter B.4 of the Diagnostic Guideline).
[2] https://www.awmf.org/leitlinien/detail/ll/028-018.html; last checked 07/17/2018

comorbid somatic disorders is referred to in the S3 guideline, but not detailed.

2. This S3 guideline is intended to provide an essential basis for improving the training of all professions involved in the diagnosis and treatment of patients with ASD.
3. In the long term, the S3 guideline should lead to an improvement in the diagnosis and treatment of ASD across the lifespan in Germany, including the following aspects in particular:
    a. Early diagnosis of the disease, if possible at preschool age; in severely affected toddlers, if possible up to the age of 3 years, in order to enable early support as well as planning of school attendance (Part 1: Diagnostics).
    b. Correct diagnosis with reduction of false positive and false negative diagnoses (Part 1: Diagnostics).
    c. Correct diagnosis of comorbid psychiatric and somatic disorders (Part 1: Diagnostics).
    d. More effective treatment of central autism-specific symptomatology with improvement of symptoms in all domains (Part 2: Therapy, Chapter C.4).
    e. More effective treatment of comorbid developmental disorders with improvement in symptoms across all domains (Part 2: Therapy, Chapter C.5).
    f. More effective treatment of cognitive and daily living and adaptive skills (Part 2: Therapy, Chapter C.6).
    g. More effective treatment of comorbid mental disorders with improvement in symptoms across all domains (Part 2: Therapy, Chapter C.7).
4. Consensus-based recommendations on effective psychiatric crisis intervention for individuals with ASD across the lifespan to reduce crisis duration.
5. With regard to the structure of care, consensus-based recommendations are made on the setting of therapy (outpatient, day-care, inpatient), which should lead to patients being treated more frequently on an outpatient basis and, with a clear indication, on a day-care or inpatient basis.
6. Since the structure of care for patients with ASD -includes both health insurance -and social assistance services, additional recommendations are made regarding the need for different psychosocial care services across the lifespan.

1.2 Target patient group

The following patient groups are included in this guideline:

1. Children, adolescents and adults with suspected autism spectrum disorder (ASD) according to DSM-III-R, DSM-IV-TR (*autism, Asperger's disorder, pervasive developmental disorder - not otherwise specified*; APA, 2000; Wittchen, 1991), DSM-5 (*Autism Spectrum Disorder*, Falkai, Wittchen & Döpfner, 2015) or ICD-10 (F84.0 Early Childhood Autism, F84.5 Asperger Syndrome, F84.1 Atypical Autism; Remschmidt & Schmidt, 2017).
2. Children, adolescents, and adults with a diagnosis of ASD, as well as any comorbid psychiatric and developmental disorders that may be present in autistic disorders.

All degrees of severity of the disease as well as possible comorbid diseases should be considered.

1.3 Supply area

The guideline is intended to be valid for all care facilities that care for persons with (suspected) autism spectrum disorder. This includes outpatient, day-care and inpatient facilities that diagnose and/or provide therapy for children, adolescents and adults with developmental disabilities, intellectual disabilities, special needs or mental disorders as well as autism spectrum disorders.

1.4 Target user group/addressees

Knowledge and application of these guidelines is therefore particularly useful for the following professional groups:

1. (Specialist) doctors for child and adolescent psychiatry and psychotherapy, (specialist) doctors for psychiatry and psychotherapy, paediatricians and adolescent doctors, psychological psychotherapists and child and adolescent psychotherapists.

   In addition, the guideline is important for information for general practitioners, neurologists and, in principle, physicians of all disciplines who assess possible somatic comorbidities including sensory disorders (especially hearing, vision) in persons with ASD and should therefore know about the clinical picture.

2. Other persons who may be involved in the diagnosis and/or therapy for autism spectrum

disorders such as persons with psychological counselling activities without a licence to practise, (social / curative / special) educators, occupational therapists, speech therapists, learning therapists, music therapists, nursing staff.

3. Indirect users and interfaces for which the guideline may be important:
    a. Medical and psychotherapeutic associations,
    b. Personally concerned and/or interested persons (e.g. parents, relatives, teachers, friends),
    c. Social and youth welfare offices, social welfare agencies, youth welfare agencies, pension offices,
    d. Labour administration and the employment agency,
    e. Decision-makers in health policy and health insurance companies, courts and experts.

The examination of the guidelines is, of course, not to be regarded as a qualification to carry out diagnostics or therapy. Whether and to what extent a person is qualified to perform diagnostics and/or therapy on patients, or whether he or she is allowed to do so at all, depends on his or her professional training and, in difficult cases, also on the individual's level of experience. These guidelines cannot and are not intended to replace this long-standing process. Rather, they serve to provide information and offer an overview of the current literature as well as evidence-based recommendations.

2 Composition of the Guideline Group: Stakeholder Participation

In the best case, the drafting of a guideline should be interdisciplinary and multiprofessional and involve the patients concerned. This procedure should help to draft an independent guideline, or at least a guideline characterized by a plurality of dependencies through the participation of various interest groups.

2.1 Representativeness of the guideline group: Professional groups involved

Various professional societies, organizations and professional associations from all over Germany were involved in the preparation of this guideline. A list of these and their official representatives at the consensus conference can be found in Table 1

Table 1: Co-issuing professional societies, associations and organisations and their mandate holders and deputies

	Society/Association	Mandate holder	Deputy
1	**Aspies e.V.**	U. Sünkel / later S. Lipinski	Substitute present both days
2	**Autismus Deutschland e.V.**	T. Leppert	F. Nolte / F. Diekmann
3	**Federal Working Group of Head Clinicians for Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy e.V. (BAG)**	E. Englert	M. Noterdaeme
4	**Federal Directors' Conference Adult Psychiatric Clinics e.V. (BDK)**	P. Grampp	-
5	**Professional Association for Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy in Germany e.V. (BKJPP)**	A. Schmidt	-
6	**Professional Association of German Psychiatrists e.V. (BVDP)**	C. Roth-Sackenheim	-
7	**Professional Association of Paediatricians and Adolescent Doctors e.V. (BVKJ)**	U. Büsching	-
8	**Federal Association of Behavioural Therapy in Childhood and Adolescence e.V. (BVKJ)**	I. Kamp-Becker	-

Continuation Table 1: Co-issuing professional societies, professional associations and organisations and their mandate holders and deputies

	Society/Association	Mandate holder	Deputy
9	**German Federal Association for Speech Therapy e.V. (dbl)**	K. Snippe	-
10	**German Society for Pediatric and Adolescent Medicine e.V. (DGKJ)**	H. Hollmann	-
11	**German Society for Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy e.V. (DGKJP)**	C. M. Friday	U. Hagenah
12	**German Society for Psychiatry and Psychotherapy, Psychosomatics and Neurology e.V. (DGPPN)**	K. Vogeley	M. Can
13	**German Society for Mental Health with Intellectual Disabilities e.V. (DGSGB)**	T. Sappok	I. Gaul
14	**German Society for Social Pediatrics and Adolescent Medicine e.V. (DGSPJ)**	B. Ladwig	M. Steffen
15	**German Society for Behaviour Therapy e. V. (DGVT)**	R. Merod	D. Will
16	**German Association of Occupational Therapy (DVE)**	I. Löffler-Idel	S. Hiebl
17	**German Professional Association for Behaviour Therapy e. V. (DVT)**	C. Lechmann	W. Ströhm
18	**German Music Therapy Society e.V. (DMtG)**	T. Bergmann	B. Evers-Grewe
19	**Association for Special Education (vds)**	S. Prändl	-
20	**Scientific Society Autism Spectrum e.V. (WGAS)**	L. Tebartz van Elst	L. Poustka

Furthermore, the following persons were involved as experts or authors or moderators in the consensus conference and/or in the preparation of the texts of the therapy guideline, but were not entitled to vote: K. Jensen, L. Neugebauer, L. Vllasaliu, M. Luh, A. Todorova, C. Lalk and Prof. Ina Kopp.

By 2/16/2021, 15 specialty society boards (out of 19) fully agreed with all recommendations; 4 societies submitted special votes on individual recommendations (see pp. 36ff below) but agreed with the other recommendations.

2.2 Representativeness of the guideline group: patient participation

Involving patients and relatives in the guideline development process is important for several reasons. In particular, the perspective and experiences of those affected should be included, as

should their expectations of health care. At the same time, participation promotes the creation of transparency with regard to the scientific approach and clinical decisions, as well as their acceptance. It is therefore advisable to involve patient representatives in the work at an early stage. This has been done in the case of the present guideline: Two associations - the Bundesverband Autismus Deutschland e.V. and Aspies e.V. - were involved from the beginning and were given the opportunity to participate in the various steps of the development process according to their own wishes and time constraints. Their representatives were -involved from the beginning both in the steering group in the creation -and in the consensus conference as mandate holders in the decision-making process.

2.3 Cooperation of the steering group

For a better understanding of the development of this guideline, the working structures of the guideline group should be briefly discussed. The work involved in the preparation of an S3 guideline cannot be accomplished without the cooperation of a larger group of persons or, above all, experts. The most important topics and areas - both scientific and clinical - should be covered. This form of grouping is reflected in the steering committee. Although the majority of its members are elected representatives with voting rights, the steering group is not limited to them. The steering group, as the name implies, has primarily a steering function in the work on the guideline, insofar as it both drives the process forward and defines the exact path through regular meetings and important votes. In the case of this guideline, the steering group met about two to four times a year, each time for one day in Frankfurt am Main, in order to discuss, make decisions, discuss studies or already own draft texts and check the work status. In addition, from March 2017 onwards, telephone conferences were held approximately once a month. Both the meetings and the telephone conferences were coordinated, organized and led by Prof. Christine M. Freitag and her working group, in particular Dr. Leonora Vllasaliu. The working group also carried out the systematic searches and study extractions as well as the preparation of the meta-analyses.

The writing of the chapters themselves was again divided among working groups according to interest and expertise, which were coordinated by working group leaders. Where possible, the texts and, above all, recommendations were sent to the entire steering group in each case after the first draft had been prepared, and then discussed, debated and, if necessary, agreed upon in the next guideline meeting in Frankfurt. This also had the aim of anticipating part of the discussions and corrections before the consensus conference, in the hope that it would then be possible to concentrate only on the essential points.

2.4 Authors of this guideline

The authors of this guideline are listed at the beginning of each chapter. Overall, the following people were involved in the writing process: Dr. Thomas Bergmann, Dr. Uwe Büsching, Fabian Diekmann, Prof. Dr. Matthias Dose, Prof. Dr. Christine M. Freitag, Dr. Ulrich Hagenah, Sara Hiebl, Dr. Helmut Hollmann, Prof. Dr. Inge Kamp-Becker, Dr. Barbara Ladwig, Claus Lechmann, Silke Lipinski, Dr. Tobias Leppert, Ingrid Löffler-Idel, Friedrich Nolte, Prof. Dr. Luise Poustka, PD Dr. Tanja Sappok, Dr. Arne Schmidt, Prof. Dr. Judith Sinzig, Kristin Snippe, Ulrike Sünkel, Prof. Dr. Ludger Tebartz van Elst, Prof. Dr. Dr. Kai Vogeley, Diana Will.

3 Methodological rigour

Medical guidelines claim to promote the quality and transparency of care. A core characteristic of good CPGs is the evidence base and the associated methodological precision in the selection of scientific evidence as well as the disclosure of the relevant procedure. In the following chapter, the procedure for the preparation of this part of the S3 guideline will be described. It is mainly based on the AWMF regulations (AWMF, 2012) and the *German Instrument for Methodological Guideline Evaluation* (AWMF & ÄZQ, 2008).

3.1 Research, selection and evaluation of scientific evidence (evidence-based)

The methodological procedure for the present guidelines on autism spectrum disorders is based on numerous systematic literature searches. At the beginning of the work on the guidelines, the steering group first collected and defined key therapy questions (TSF) (see Table 2: Prioritisation of key issues) and then summarized them into chapters. Search criteria were then defined for some of these key questions, which served as the basis for the systematic literature search. The individual searches are described in more detail in Appendix B of the evidence report.

3.1.1 Formulation of key questions

Based on the newly gained experience within the process of drafting the diagnostic guideline, the key questions originally formulated for therapy were completely revised and significantly shortened. In their formulation, the steering group tried to adhere to the so-called PICO system (see Figure 1: PICO - The addictive question (taken from the AWMF rulebook)). This resulted in 13 new key therapy questions (TSF); these are listed in Table 2: Prioritisation of key issues

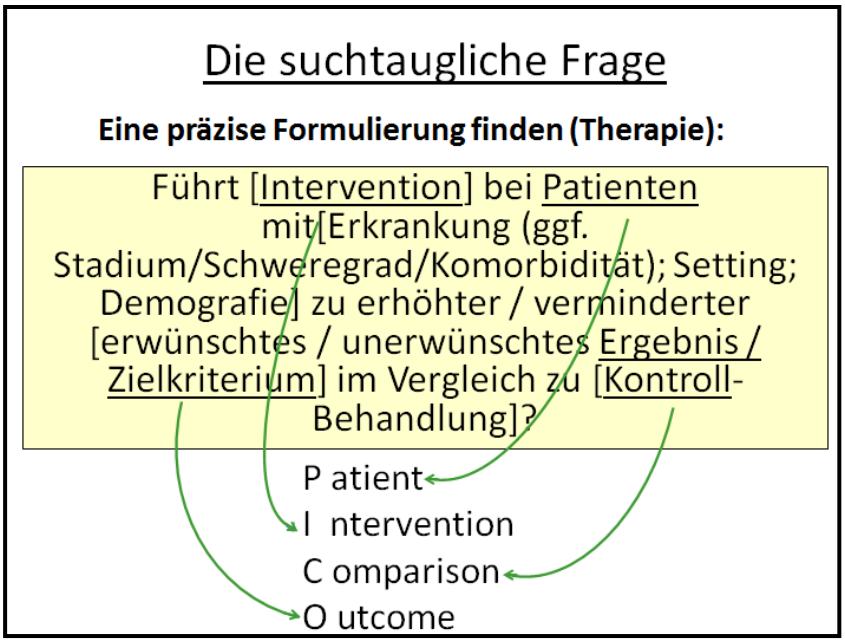

Figure 1: PICO - The addictive question (taken from the AWMF rulebook)

Parallel to the definition of the key questions, the structure of the therapy guideline was discussed and finally defined in its current form by a vote. An attempt was made to find a structure that was as user-friendly as possible and yet adapted to the evidence.

3.1.2 Factual evidence, manual research and systematic evidence base

According to the AWMF rules and regulations, the individual key questions cannot and should not all be answered in the same way. Therefore, it was first agreed per TSF which way the respective question should or can be answered. For this purpose, the steering group divided the TSFs into three processing categories by means of a voting procedure based on the aforementioned set of rules: Factual Evidence, Manual Research, and Systematic Evidence-Based.

Factual evidence: As the name implies, the aim of these chapters/key questions is merely to provide a descriptive description of a fact or status quo. The authors choose their own literature and are largely free to answer the question. However, they are bound in that they are, of course, required to select the literature to the best of their knowledge and belief and to ensure that using their own preferences as a criterion for inclusion and exclusion of studies does not bias the data. Thus, even points/views that are important because of their prevalence but do not match one's own beliefs must be included. In contrast to the diagnostics part, however, in

the case of the therapy guideline the voting of the 13 TSFs did not result in any factual evidence, so that this category does not play a major role this time.

Systematic evidence-based (SE): In particular, the key questions assessed as central, but also controversial and/or scientifically well-studied key questions, should not be answered solely on the basis of expert consensus. Instead, a scientific foundation of these text sections and the resulting recommendations is extremely important. Therefore, at a minimum, evidence-based work from the source guidelines will be used to answer such a key question, or a systematic search and selection of the literature will be conducted in-house. The work process is documented in detail for such key questions, including the maintenance of flow diagrams and exclusion tables in which the reasons for exclusion are documented. Study results are extracted and their quality is assessed via a risk of bias tool, and each study is assigned an evidence level. This and the extraction of all key study information was performed using detailed study extraction forms (see example template in Appendix D: Brief Examination and Study Extraction Sheet Template), which can be found in the appendix/evidence report of the guideline for greater transparency.

Manual research: For some questions, manual research was carried out either because the time and money required for a systematic evidence base was too high or because a question can only be answered by an expert consensus due to a lack of empirical studies. Also for these chapters/key questions, if appropriate, a recommendation was adopted within the consensus conference as a clinical consensus item without a systematic evidence base. Similar to the evidence base, authors can search their own literature for these key questions. There is no need to maintain evidence and exclusion tables or assign evidence levels when conducting a hand search.

Table 2 below lists the key questions on the therapy part and their consensus categorisation:

Table 2: Prioritisation of key issues

Key questions	Category
TSF 1. What therapeutic goals can be formulated for ASD? e.g. related to age, cognitive skills and comorbidity as well as other factors: course, quality of life, acceptance of oneself, compensatory strategies, social skills, autonomy, secondary prevention	Hand research
TSF 2. what are the basic aspects to be considered in everyday interactions with autistic persons, what is useful, what is harmful?	Hand research
TSF 3. What expectations do affected persons, parents/caregivers/relatives have of care?	Hand research
TSF 4. What factors facilitate access to health care for people with autism in Germany?	Hand research
TSF 5. What skills and qualifications should therapists have?	Hand research
TSF 6. What therapeutic procedures are available for which indications in ASD, and what is their evidence?	Systematic evidence base
TSF 7. Which therapeutic procedures have been shown to be ineffective?	Systematic evidence base
TSF 8: What adverse effects occur with the different therapeutic procedures?	Hand research
TSF 9. what specific methods of crisis intervention exist e.g. in stressful situations, suicidality and others?	Hand research
TSF 10. How can external and/or autoaggressiveness be treated in ASD?	Systematic evidence base
TSF 11. What are the special features of regressive developmental trajectories?	Systematic evidence base
TSF 12. which psychosocial support services are necessary and/or useful (e.g. housing situation, occupation, social environment, structuring of daily life, school and vocational training, cultural and social participation)?	Hand research
TSF 13: When is a partial hospitalization or inpatient intervention indicated?	Hand research

Note: The consensus of the response levels was reached on 15.09.2015. During the subsequent working meetings, however, there were still minor changes that were reconciled in each case.

3.1.3 Use of existing guidance on the topic

As part of a systematic literature search, we first looked for existing guidelines on the topic of ASD outside Germany (see Appendix A: Source Guideline Search). These were screened according to the following inclusion criteria:

- The patient and user target groups should be consistent with the present guideline (see Chapter 1.2 Target patient group and 1.4 Target user group/addressees).
- The guideline should be evidence-based, i.e. it should be based on systematic literature searches and, if possible, on (own) meta-analyses.
- On the one hand, the guidelines should be the most recent version (previous versions were discarded).
- and secondly, the publication should not be older than 5 years.

The last criterion was set because it is assumed that, due to the large number of newly published studies, the resulting findings can not only decisively change the state of research, but also the practical conclusions and thus medical care. The AWMF itself therefore uses this period for the validity of guidelines, so that an update of the same becomes necessary after 5 years.

The guidelines that did not need to be excluded by this initial screening were then reviewed by four individuals (stud. Assistant cand. psychol. Marianne Menze, stud. Hilfskraft cand. psychol. Magdalena Schütz, Dr. Leonora Vllasaliu; Prof. Dr. Christine M. Freitag, all in Frankfurt) systematically assessed them according to the DELBI criteria[3] (see Appendix B: Evaluation of source guidelines). Prior to their assessment, a steering group meeting on 15.09.2015 determined for each DELBI item what the minimum value of the item's assessment should be in each case. For this, the relevance of each item was discussed together and then a value on the four-point Likert scale (1: *Does not apply at all to* 4: *Fully applies*) was set as a minimum. These minimum scores are shown in Appendix B along with the individual scores. At the steering group meeting on 25/11/2015, these DELBI ratings were then discussed individually and the majority of the guidelines and Practice Parameters were discarded due to lack of evidence base. In fact, no guideline was able to meet the minimum criteria set. Nevertheless, after extensive discussion, it was agreed that three guidelines were at least good enough to form a basis, which was in any case to be supplemented on the basis of the authors'

[3] German instrument for methodological guideline assessment, published by the AWMF and the ÄZQ; version 2005/2006 + domain 8, 2008; www.delbi.de)

own searches and analyses. However, one of these three initially included guidelines (Malaysian Health Technology Assessment Section / MaHTAS 2014) was unanimously excluded again in September 2017 via an e-mail vote, as several members of the steering group had noticed during the synopsis preparation that the quality of decisive DELBI criteria was too poor[4].

Therefore, only the following two source guidelines remained at the end of the work process:

1. **NICE Children:** NICE Clinical Guideline Number 170: *The management and support of children and young people on the autism spectrum* / 2013 / United Kingdom (NICE, 2013).
2. **NICE adults:** NICE Clinical Guideline Number 142: *Autism: recognition, referral, diagnosis and management of adults on the autism spectrum* / 2012, latest update 2016 / UK (NICE, 2012).

Using these source guidelines, **guideline synopses** were then created for the key questions. Similar to the diagnostic guideline, this was not just a comparative comparison of recommendations, but a short narrative summary, each with the aim of summarising the work of the source guidelines on the relevant question. This was done regardless of whether a recommendation could be made by the two NICE working groups at the end of this work process. These synopses are discussed in the individual chapters of the guideline and also form an important decision-making basis for the recommendations made at the end.

[4] The two delbi criteria that ultimately led to the exclusion of the Malaysian Guideline were criteria 9 and 10. In particular, the fact that it was not clear from the existing description which criteria the Malaysian working group used to include studies and how exactly their consensus building regarding the recommendations took place were thus decisive for this decision.

3.1.4 Evidence base process

The following types of sources form the basis of these guidelines: The two existing guidelines available as the primary evidence base, systematic reviews with meta-analyses and more recent and/or supplementary primary literature, and, when necessary, direct contact with experts. The research and compilation of data followed a specific scheme, which is illustrated in Figure 2: Development process of the guideline

The systematic searches took place for both aggregated evidence and primary studies. In order to minimise errors within the systematic search and to ensure a uniform procedure, these steps were all carried out in the Frankfurt working group. This was particularly necessary because not all members of the guideline steering group had access to the same search databases and literature management programs.

As soon as the body of literature was established, it was then determined for each therapy method whether the existing meta-analyses could satisfactorily answer the question of the effectiveness of the method. If not, it was decided to switch to the primary study level or to include it additionally. The most frequent reason for this change was the lack of topicality of the aggregated evidence or the existence of more recent, important primary studies that were not included in the respective meta-analysis, or the fact that even current systematic reviews were unable to calculate meta-analyses (often due to too high heterogeneity of the procedures).

The supplementary literature search for other reviews and primary studies was conducted primarily for the time frame that the source guidelines no longer considered (update), to answer key questions that were not answered or only inadequately answered in the source guidelines (re-search), and when the recommendations and statements were not transferable to the German health care system (adaptation).

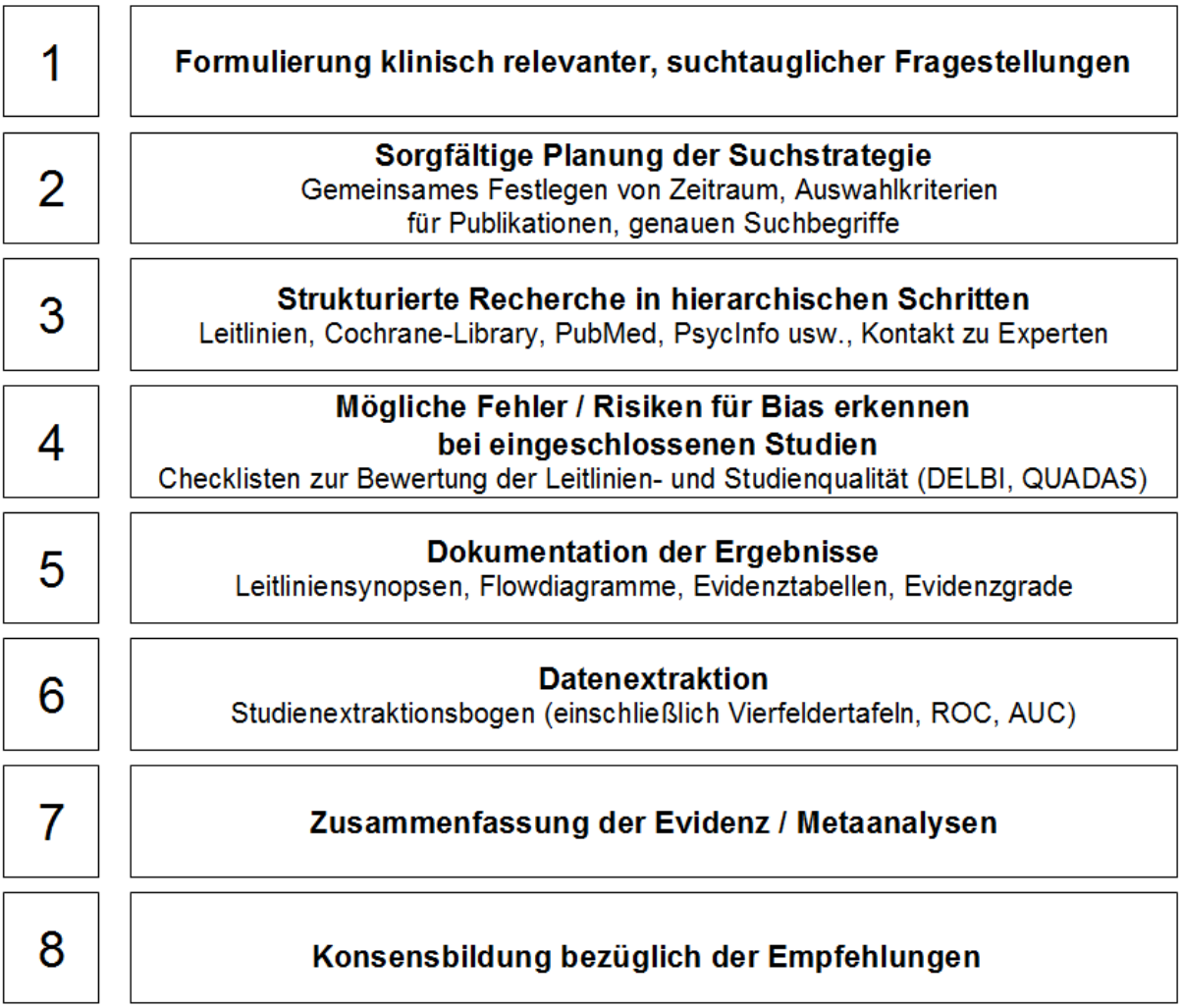

Figure 2: Development process of the guideline

The steering committee also decided to conduct a general search for *all* therapeutic procedures for ASD in this part of the guideline without specifying them further. In a second step, additional systematic searches were conducted for specific procedures and questions (see Appendix B in the evidence report for both), as the general search had not picked up many studies. In addition, during the processing of individual procedures, targeted hand searches were carried out and studies were taken into account that members of the steering group were able to contribute on the basis of their expert knowledge, or when members of the working groups learned that new RCTs had appeared, these were added. It is therefore not uncommon for studies to be included that were not published until after the respective search date.

3.1.5 Systematic literature searchand selection of evidence

The results of the searches were recorded in flow diagrams (see also Appendix B in the evidence report). The time frame of the search included studies published in German or English either between the end of the search for the included guidelines (in this case, based on the oldest *NICE adult* guideline: 01.01.2011) and our searches in 2016/2017 or, in the case of new searches or if the source guidelines could not be used as a basis, from 1980 or 1992 [5]to the respective search date (see Appendix C: Systematic Searches).

The composition of the search terms was based on the recommendations of the Cochrane Collaboration[6]for writing systematic reviews.

Inclusion and exclusion criteria within the therapy guideline

Due to the iterative hierarchical process, there were different inclusion and exclusion criteria and extractions depending on the study design. In the case of the meta-analyses, the inclusion criteria were determined by the steering group via an online vote. The voting was based on the items of a risk of bias tool for meta-analyses (AMSTAR [7]; Shea et al., 2007). Steering group members were given the opportunity to indicate which criteria were too essential to be used solely as a quality measure[8]. The criteria identified here were then subsequently compiled and used in the form of a brief review to consider the inclusion or exclusion of meta-analyses (see template. Appendix D: Brief Examination and Study Extraction Sheet Template). This brief review conducted in Frankfurt using 13 detailed criteria also serves as an evidence table for the meta-analyses.

Finally, the main inclusion criteria for **systematic reviews/reviews** were:

- A meta-analysis and thus an aggregation of the study data had to be available (narrative reviews or reviews that could not ultimately make any calculations due to the

[5] At the start of the guideline work, the search was still from 1980, if not only from the NICE period not covered. At a meeting on 13.07.2016, a vote was taken to set 1992 as the new start date for the search. The background to this decision was the fact that it was not until 1992 that ICD-10 was published. Equivalently, the previous decision to use 1980 as the start date was based on the publication of the DSM-IV.
[6] http://handbook.cochrane.org/; Chapter 6.4 [last checked 01/20/2018]
[7] Available from: http://amstar.ca/Amstar_Checklist.php [last checked 22 Jan 2018].
[8] Risk of bias tools such as the AMSTAR are actually intended for the quality assessment of included studies, which are ultimately also used for the evaluation of study results and thus also for the decision for and against therapy recommendations. In the case of meta-analyses, however, the steering committee decided to slightly modify the AMSTAR checklist by having the members rate the criteria contained therein according to whether their absence should already be considered a reason for exclusion, since in such a case the primary study level would be preferable as a basis for therapy evaluation. In this sense, criteria that otherwise function as quality features were converted into reasons for exclusion.

mostly too heterogeneous or poor study situation were excluded, as in this case the individual primary studies could directly serve as sources. In the course of this, it was also checked in parallel whether own calculations had become possible due to newly published studies). In some cases, the authors partly decided to deviate from this reason for exclusion because certain reviews are well conducted and/or very well known and thus in circulation anyway, or because there is hardly any literature on certain procedures, so that individual reviews were nevertheless assessed as very helpful and were therefore included. Similar to the documentation of reasons for exclusion, a plausible reason for this deviation therefore not only had to exist, but had to be recorded. This was done at the end of the short reviews (see evidence report).

- Comparable therapeutic procedures had to be examined within the meta-analyses (cf. Reichow, Barton, Boyd & Hume, 2012). [9]
- This required a clear description of the therapeutic procedures included (setting, duration, frequency, intervention method(s) or dose).
- The systematic reviews, even if they included several study designs, had to separate the meta-analyses according to these, so that, above all, the results of the randomised clinical trials (RCTs) had to be extracted separately.
- Meta-analyses of single-case studies were generally excluded as inadequate.
- A diagnosis of ASD according to ICD-10, DSM-III, DSM-IIIR, DSM-IV, DSM-IV-TR, or DSM-5 was required.

In contrast, the inclusion criteria in the case of **primary studies** were as follows:

- Diagnosis in ASD group according to ICD-10, DSM-III, DSM-IIIR, DSM-IV, DSM-IV-TR or DSM-5 (includes diagnosis with ADI-R and/or ADOS);
- iterative inclusion: meta-analysis > RCT[10]> CCT [11];

[9] It must be explicitly pointed out here that these are ultimately subjective decisions that are not easy to make, precisely because it is always a balancing act between two extremes. Of course, as the saying goes, "apples should not be compared with oranges"; at the same time, a complete overlap of therapy - especially in the case of psychosocial interventions - can only be given in a few exceptional cases. Following the work of Reichow, Barton, Boyd and Hume (2012), an attempt was made to make these decisions as objectively as possible, using primarily the respective method, setting, duration, frequency, control group and age of the subjects as criteria.

[10] It was discussed again on 01.02.2017 and explicitly stated that even if a single RCT is available, this is sufficient and no CCTs should be consulted. Only if a specific question is discussed again or a specific plausible exceptional reason is seen (e.g. very poor study quality of the RCT; only German study, etc.) to include one or more CCTs for a therapy procedure, will these be included even if randomised studies are available.

[11] At a working meeting on July 4, 2016, the steering committee decided not to include single-case studies in this guideline because, first, they do not provide a basis for scientifically proving the effect (efficacy) of an intervention and, second, they overestimate effect sizes. In comparison, the NICE guidelines only allow randomised controlled trials in their two guidelines, so that the research of the working group is far more open with regard to the criterion of study design.

- If a large number of RCTs are available for a single therapy method (e.g. social skills training), only manualised methods are included[12];
- only behavioral, linguistic, and psychopathology-based treatment outcome measures and results of multidimensional IQ tests were considered (i.e., no specific cognitive measures or laboratory parameters, for example), as well as only those that referred to the a priori key questions;
- Studies in progress at the time, not yet completed, and book chapters were excluded;
- Individual reasons for exclusion resulting from the study design (see respective exclusion tables) could also lead to exclusion. [13]

The decision to include studies was made using a two-stage screening process. In the first stage, the title and abstract of the studies were used to check whether the article was thematically appropriate and whether patients with ASD were included. If this did not already lead to exclusion, the full text of the respective source was reviewed and a decision was made on inclusion or exclusion based on the above criteria. The author groups then received the literature required for the chapters, but were also able to exclude studies in justified cases, which were then also included in the exclusion tables.

With regard to the literature searches on which the guideline is based, it was also decided on 25.11.2015 that special attention should be paid to procedures that are used in practice. In order to compile a list of such methods, the representatives of Aspies e.V. and autismus Deutschland e.V. were asked to conduct a survey in their respective associations. The members were asked which therapy methods they would like to see included in the guideline.

Table 3: List of procedures with chapters of the guideline in which the approaches are presented

Therapeutic approaches from practice	To be found in chapter of LL
Behaviour modulating approaches	
Behavioural therapy methods	all chapters
TEACCH	C.4, C.6
Social competence training (groups)	C.4, C.7
social stories	C.4
Theory-of-Mind Training	C.4

[12] This decision was made within the steering group, on the one hand to reduce the already very high number of procedures to be examined and, on the other hand, because in the case of an oversupply of therapies, the manualized ones are considered to be of higher quality and should therefore also be preferred.

[13] In consultation with Dr. Jensen (statistician of the guideline) it was decided not to specify a minimum sample size for the second part of the guideline. Only the single-case design was excluded, as already mentioned.

Relationship/interaction-oriented approaches	
Attention Interaction Therapy	C.4
Floortime	C.4
Relationship Development Intervention	C.4
Differential Relationship Therapy	C.4
Music Therapy	C.4, C.5
Body and perception oriented approaches	
Affolter concept	no studies
sensory integration therapy	C.4, C.6
Psychomotor	C.5
Communication-oriented approaches	
Augmentative and Alternative Communication	C.4, C.5
PECS	C.5

Continuation Table 3: List of procedures with chapters of the guideline in which the approaches are presented

General (psycho-)therapeutic approaches	
Client-centred conversational psychotherapy	no studies
(Cognitive) Behavioural Therapy	all chapters
Systemic therapy	no studies
Gestalt Therapy	no studies
Transactional Analysis	no studies
General (curative) pedagogical approaches	
Pedagogical development support	no studies
Experiential Education	Animal-based therapies: C.4, C.6
Psychoeducation	all chapters
Environment work	
Client-centered counseling	Psychoeducation: all chapters
Solution-oriented consulting	Psychoeducation: all chapters
Systemic consulting	Psychoeducation: all chapters
Marte Meo	no studies
Video feedback	C.4
Parent Training Programs	C.4, C.5, C.7

Literature searches took place in the following databases: PubMED; EBSCO Host, which includes PsycINFO (formerly PsychLIT), PsycARTICLES, PSYNDEXplus. More detailed information on search date, search terms, etc. can be found in Appendix C: Systematic Searches

The search for aggregated evidence on ASA therapy in general was also conducted again in 2017, as it was noticed that a whole series of systematic reviews had been published in 2016/2017. The studies in this follow-up search underwent the same short review. The literature lists of excluded reviews were also used to supplement the manual search.

In the case of primary studies, studies remaining after the search and selection process were then extracted using a specially designed study extraction sheet (see Appendix D: Brief Examination and Study Extraction Sheet Template) and assessed using a therapy study quality assessment tool appropriate to the study design in question (Risk of Bias Tool; Buchberger et al., 2014; Downs & Black, 1998; Higgins et al., 2011; Hróbjartsson, Boutron, Turner, Altman & Moher, 2013; KCE, 2013; Kennelly, 2011). The study extraction sheet was developed by Dr. Vllasaliu, Dr. Jensen, and Prof. Dr. Freitag.

3.1.6 Evaluation of the evidence according to CEBM 2011

Since the aim of S3 guidelines is the existence of evidence-based recommendations, this evidence should ideally be of a very high methodological quality. Together with the factor of consensus of all persons involved in the development, this in turn constitutes the quality of the respective recommendation. In this context, the level of evidence is not the same as the level of recommendation, but rather a stronger or weaker recommendation can be agreed upon in each case. The recommendation refers to the clinical relevance as well as the feasibility of the therapy procedures in the respective health care system.

In the case of the present guideline, it was decided by consensus of the steering group on 15 September 2015 to retain the graduation template of the Oxford Centre for Evidence-based Medicine (version from 2011; OCEBM Levels of Evidence Working Group, 2011) for the assessment of the evidence levels, which was already used for the first part (see Table 4, p.24f). Studies with evidence levels 1 and 2 are essential for the interpretation of the study situation with regard to effective or non-effective therapies.

This is also essential with regard to the correct interpretation of study results, which are presented in detail in the long version of the guidelines and in the evidence report (see flow diagrams and study extraction sheets), as well as the evaluation of the argumentation presented below with regard to the special votes (see below p. 35ff). Clinical expertise that, according to the OCEBM, does not correspond to any evidence at all, unless it has been systematically summarized, critically appraised, and published (level 4) within the framework of case series and a peer review, must not be a criterion for a recommendation, especially in an S3 guideline. With regard to the evidence assessment of meta-analyses, it should also be noted that "level 1" evidence is only given if it is a meta-analysis of high-quality randomized controlled trials.

Especially on the topic of intervention in autism spectrum disorders, numerous meta-analyses have been published in which results of non-randomized, controlled studies or even of case series have been listed and meta-analytically aggregated. This is referred to in the detailed presentation of the study situation in the long version of the 2nd part Therapy of the present guidelines. Some meta-analyses that were used as justification for the special votes have precisely not aggregated randomized-controlled trials and therefore do not correspond to "level 1" evidence.

3.1.7 Creation of evidence tables

Evidence tables in the form of the aforementioned study extraction sheets (SEB), including a

risk of bias assessment (Buchberger et al., 2014; Downs & Black, 1998; Higgins et al., 2011; Hróbjartsson et al., 2013; KCE, 2013; Kennelly, 2011), were prepared for the topic areas that the steering committee decided should be answered in an evidence-based manner (via a Delphi process). These were each adapted to the research question and can be found in the evidence report of the therapy guideline.

It should be noted at this point that the questionnaires are quite detailed in order to make it possible to assess the study quality as well as the comparability of the different therapy methods. For this reason, the SEBs also contain many direct quotations, which are indicated by quotation marks. It should be noted here that the information and values in a study excerpt sheet are, of course, always based on the study or studies that are fully cited directly at the beginning of the SEB.

For economic reasons and in order to make the already very long evidence report still reasonably manageable, the extraction of studies also had to be prioritised. Therefore, studies were generally only extracted if they were not already part of the aggregated evidence in the form of source guidelines or included reviews. Exceptions to this have only been made in the case of very high relevance of individual studies or by chance when it was noticed too late that a study was already part of included aggregated evidence, so that the extraction work had already been done and therefore the specific information was also included in the evidence report for you.

3.1.8 Compilation of "analysis packages

As already described, a decision had to be made in the course of the study processing as to which study results could actually be meta-analytically aggregated together. This decision was made based on the preliminary work of creating the extraction forms and preparing an overview of the respective study design and content in each case by Prof. Dr. C. M. Freitag, who, as a long-standing autism researcher and specialist in child and adolescent psychiatry and psychotherapy, brings with her the appropriate expertise to assess both the therapy procedures and the target variables. No other procedure was possible, since only in Frankfurt the personnel capacities for the preparation and processing of the SEBs were financed from own research and teaching funds and the decisions regarding meta-analytical aggregation could neither wait until the guideline meetings, nor could they have been made meaningfully in this context and the short time there. Therefore, the Frankfurt working group met every two weeks, went through procedure by procedure and sorted them into "analysis packets" if enough studies were available and suitable for calculation. The criteria for combining study

results for meta-analytical aggregation were as follows: Same treatment method (e.g., specific [manualized] form of psychosocial intervention, specific medication), comparable outcome measures/measuring instruments, comparable setting (group/individual), overlapping age groups, and same study design (RCT only).

Table 4: Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5*)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or n-of-1 trials	Randomized trial or observational study with dramatic effec	Non-randomized controlled cohort / follow-up study*	Case-series, case-control studies, or historically controlled studies**	mechanism-based reasoning

Continued Table 4:
Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5*)
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, nof-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort / follow-up tudy (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**.	Case-series, case-control, or historically controlled studies**	mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or n-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized rials	Randomized tria	Non -randomized controlled cohort / follow-up study**	Case-series, case-control, or historically controlled studies**	mechanism-based reasoning

Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.
As always, a systematic review is generally better than an individual study.

Taken from: OCEBM Levels of Evidence Working Group 2011 ; http://www.cebm.net/blog/2016/05/01/ocebm-levels-of-evidence/ [last checked 11 Jan 2018].

Red font: Question and study designs relevant for the 2nd part (therapy).

3.1.9 Statistical procedure

Only results of RCTs were included in the meta-analyses calculated in the guideline preparation. A separate meta-analysis was calculated for each outcome measure of a comparable therapeutic approach. The number of persons in the therapy and control group, the respective mean and standard deviation of the corresponding outcome measure in the two groups before as well as after the intervention or (if available) also at a long-term follow-up were extracted from each study. Based on the recommended methods of the Cochrane Handbook (Higgins, 2011) to calculate the standard deviation of change per intervention group, a correlation of r = 0.3 between baseline and post values was assumed. The effect measure was the mean difference (MD, *Mean Difference*) of change (difference between post minus baseline value) per intervention group. A fixed-effect meta-analysis model was performed using R software (https://www.r-project.org/) and the R package "meta" in its latest version. If the heterogeneity of the studies was too high (I2 > 70 %), the results of the meta-analysis were not presented.

3.2 Formulation of recommendations and structured consensus building

In order to definitively answer the clinically relevant questions through recommendations, a formal consensus process was conducted. Professional associations and organizations for which the topic of ASD therapy was deemed relevant by the steering group were officially invited to participate in the second consensus conference on November 22 and 23, 2018, in Frankfurt am Main. In addition, they were asked to nominate an official mandate holder and, in case of a possible prevention of the same, a deputy at the time of the consensus conference, who would represent the respective association in the conference with *one vote per society/association/association* (see Table 1: Co-issuing professional societies, associations and organisations and their mandate holders and deputies). All participating societies, associations and federations thus had equal rights in the voting.

The participants received the important materials for the consensus conference in advance in order to be able to prepare for the votes.

Each participant was required to submit a conflict of interest declaration. The tabular list of these can be viewed in Appendix E: Conflict of Interest Declaration If there was a conflict of interest of the mandate holders when voting on recommendations, there was an option for the deputy to take over the vote. If conflicts of interest also existed for the deputy, the respective professional society/association had to relinquish its vote at this point.

3.2.1 Formal consensus building: procedure and implementation

The voting for the assignment of grades of recommendation can be performed using various methods. The AWMF proposes the following three methods (or a combination of them) in its guideline guidelines:

- Nominal group process (approx. 15 - 20 participants)
- Structured consensus conference (30 - 60 participants)
- Delphi technique (50 - 200 participants) [14]

The steering group also decided to maintain the nominal group process for the therapy guideline on 30/06/2017. Accordingly, the process was as shown in **Figure 3**

1. Presentation of the statements/recommendations for consensus
2. Silent note: Which recommendation/grade of recommendation do you disagree with? Supplement, alternative?
3. Registration of comments by circulation and summary of comments by the moderator
4. Preliminary vote on discussion of individual comments - Establishment of a ranking order

Figure 3: Sequence of the Nominal Group Process (taken from the AWMF Rulebook)

The individual steps were then repeated for each recommendation. The conference was moderated by Prof. Dr. Kopp from the AWMF.

As further votes were outstanding at the end of the two-day conference, online voting was still required for the recommendations in the following chapters: C.5, C.6, C.10, C.11. This was done via a Delphi-style e-mail circulation procedure.

For this purpose, the initial version prepared by the respective authors was sent in a first round to all those entitled to vote and all textual amendment proposals for the corresponding recommendations were obtained and compiled by Dr. Vllasaliu. The received amendment proposals as well as, if available, the respective argumentation for the sent amendment proposals were again sent to all mandate holders and also the deputies. In a second round (first vote), each society/association could then initially cast one vote per proposed, amended text passage. The

[14] see AWMF regulations p. 79ff

proposed amendments were each voted on individually and, depending on the simple majority, the respective proposed amendment was included in the wording of the recommendation. In the third round (second vote), the final recommendation was voted on, based on the results of the first and second rounds.

This last vote resulted in the consensus strength for recommendations C.5, C.6, C.10, C.11. In the absence of on-site discussions, online voting resulted in a much greater divergence in responses, resulting in rather low consensus strengths, which do not necessarily reflect (dis-)agreement with the recommendation as such, but only with individual formulations.

At any time during the entire process, it was possible to propose textual changes to the recommendations and to formulate special votes. However, the special votes received with regard to the entire guideline (see below, 3.2.4) do not take place within the framework of the votes of the delegates, but afterwards, within the framework of the vote of the LL on the boards of the individual participating societies or associations.

3.2.2 Recommendations and statements

Recommendations are further divided into *evidence-based* and *consensus-based* recommendations. These result from the prioritisation addressed in Table 2: **Prioritisation of key issues** PrioritisationTable 2: Prioritisation **of key issues** or from whether the respective recommendation/statement is based on scientific literature. This can also be given by other guidelines, in this case the two source guidelines listed in Chapter 3.1.3 Use of existing guidance on the topic

In both categories, there is also a distinction between **statements** (e.g. "*method X is effective/ineffective*") and **guidance** (e.g. "*XY should/should not be used"*).

Consensus-based recommendations/statements

Where studies are not available as a basis for certain questions or are not even sought to answer the respective question - e.g. when a hand search was found to be sufficient to answer the key question or an assessment based solely on the clinical experience of the members is deemed appropriate - recommendations can be adopted on a consensus basis. This is also referred to as a clinical consensus point (CCP).

Statements do not contain an immediate call to action, but they state or explain a certain fact. Statements are formulated, for example, when no adequate evidence has been found, but a statement should nevertheless be recorded due to thematic relevance. Statements are also formally adopted in the consensus conference, so that a consensus strength is indicated (for evidence-based statements, the level of evidence of the underlying literature is also indicated).

Table 4: Template for consensus-based recommendations

	Consensus-based recommendation
KKP	[*At this point, the text of the recommendation stands.*]
	Strong consensus/majority agreement

	Consensus-based testimony
KKP	[*At this point, the text of the statement stands.*]
	Strong consensus/majority agreement

Explanations: PPP = Clinical consensus point/Expert consensus.

Evidence-based recommendations/statements

In the guideline, the level of evidence of the underlying studies and the strength of consensus are stated for all evidence-based recommendations. Chapter 3.2.4 Formulation of recommendations and assignment of evidence levels and/or grades of recommendation). In addition, a recommendation grade is assigned in each case, the assignment of which is also described in this Chapter 3.2.4. Table 5: Template for evidence-based recommendations and statements shows the format template for adopted recommendations. The level of evidence is derived - based on the decision of the steering group - from the classification of the "*Oxford Centre for Evidence-based Medicine Levels of Evidence*" (see Table 4, p.24f).

Table 5: Template for evidence-based recommendations and statements

	Evidence-based recommendation
Level of Recommendation **A/B/0**	[*At this point, the text of the recommendation is provided*].
Evidence Level: **1/2/3/4**	Guideline adaptation: Source-LL citation [or] Sources:
	Strong consensus/majority agreement

	Evidence-based statement
	[*At this point, the text of the statement is written*].
Evidence Level: **1**	Guideline adaptation: Source-LL citation [or] Sources :
	Strong consensus/majority agreement

Both the recommendations and the statements had already been pre-formulated in the working groups, discussed in the steering group meetings and were available to the participants in this initial version about one month before the consensus conference. Within the consensus conference, each proposed change within these yellow boxes was discussed paragraph by paragraph and voted on individually. Since at the end of the paragraph-by-paragraph voting there was not necessarily a final vote on the whole recommendation, i.e. a kind of overall

approval of the respective recommendation, an overall approval had to be averaged from these voting results. This averaged value then determined whether the last line of the respective box stated "Strong consensus or consensus or majority agreement or dissent" (for more details on the classification, see Chapter 3.2.4 Formulation of recommendations and assignment of evidence levels and/or grades of recommendation). The averaged value was sent to the mandate holders as well as to the members of the steering group after the consensus conference together with the minutes, so that there was an opportunity to inspect and object. For the online votes that were required for some of the chapters after the consensus conference, the voting was similar. A more detailed description of these can be found in Chapter 3.2.1 Formal consensus building: procedure and implementation Appendix E and F in the evidence report, where the minutes in which the recommendations that were ultimately voted on were entered are included.

3.2.3 Consideration of benefit, side-effect-relevant outcomes

In the study extraction sheet, both the data available in the study on the efficacy of the respective therapy and the reported adverse effects are recorded. Both are taken into account in the preparation of the guideline text and the formulation of the recommendations. In addition, economic and pragmatic cost-benefit considerations are taken into account in the grading of recommendations, following the GRADE scheme (see Chapter 3.2.4 Formulation of recommendations and assignment of evidence levels and/or grades of recommendation recommendations and 3.2.4 Formulation of recommendations and assignment of evidence levels and/or grades of recommendation).

3.2.4 Formulation of recommendations and assignment of evidence levels and/or grades of recommendation

In addition to the processed evidence, S3 guidelines take clinical aspects into account as well as patient/relative preferences. Other aspects that can be taken into account when assigning grades of recommendation are:

- ethical considerations,
- Practicability in everyday life, especially in the different areas of care,
- the applicability of the research findings to the target patient group of interest,
- Applicability to the German health care system,
- Patient and family preferences.

In contrast to the level of evidence, which reflects the robustness of the study results and thus

the extent of scientific substantiation, the degree of recommendation also reflects considerations regarding practical consequences and alternative approaches. As a result, the evidence level and the recommendation strength may differ. However, such a decision must be well justified. The so-called GRADE procedure, which is illustrated in Figure 4: GRADE procedure for recommendation grading, taken from the AWMF rulebook (Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften (AWMF)-Ständige Kommission Leitlinien, 2012). , describes how such an upgrading or downgrading of the proposed recommendation grade can occur.

The recommendation grading, which results in the first step on the basis of the evidence and forms the basis of the GRADE procedure, is represented by the solid arrows in the graph. They form the basis of the discussion on upgrading or downgrading and were therefore assigned to the recommendations in advance by the authors.

As recommended, upgrading or downgrading by more than one recommendation grade was only permitted in justified exceptional cases.

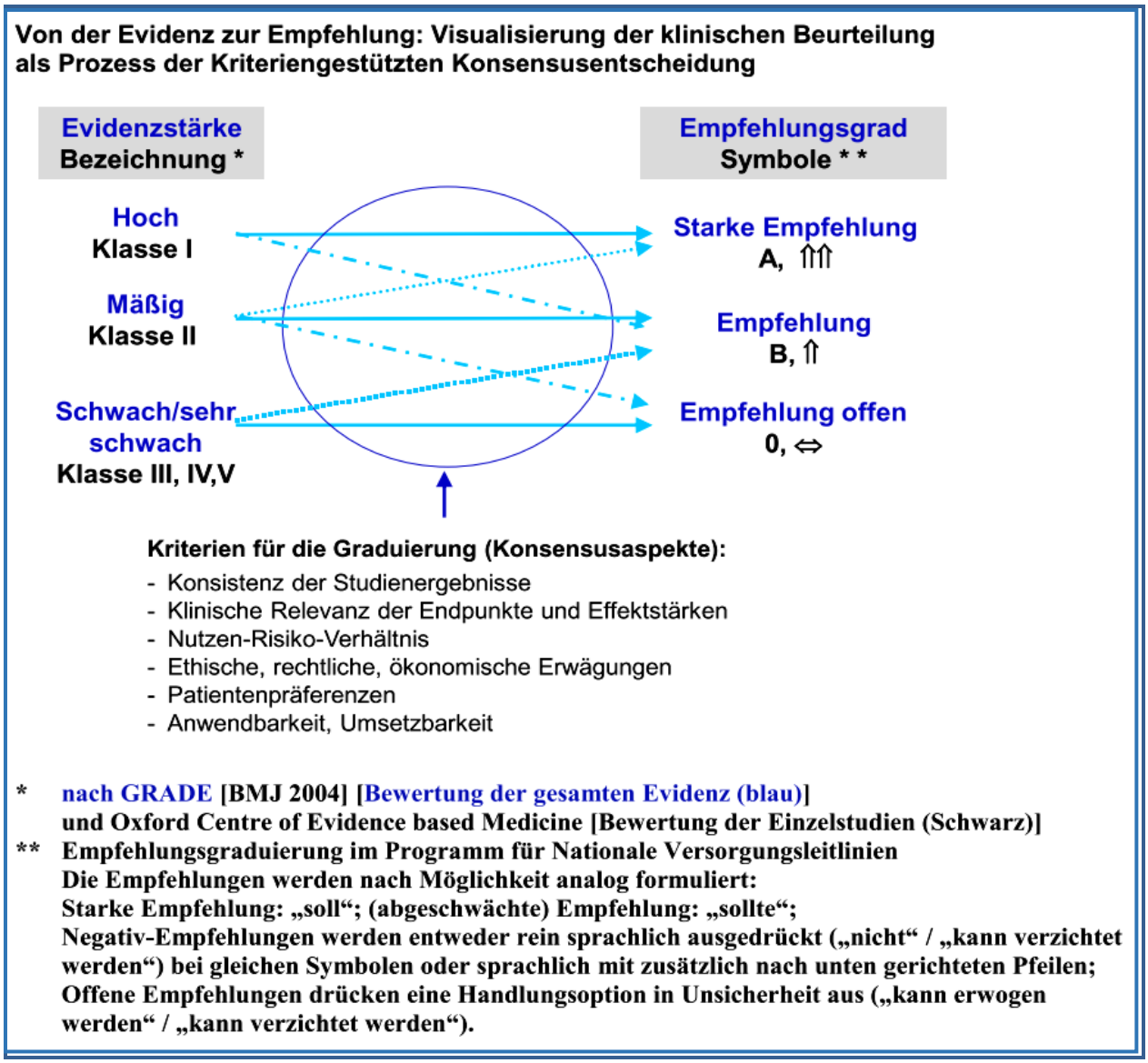

Figure 4: GRADE procedure for recommendation grading, taken from the AWMF rulebook (Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften (AWMF)-Ständige Kommission Leitlinien, 2012).

In addition, the wording of the recommendation itself also contains the respective recommendation grade. As recommended by the AWMF, this should lead to an unambiguous formulation and thus to linguistic clarity. Table 6shows how this was systematized:

Table 6: Linguistic grading of recommendations (taken from the AWMF regulations)

Level of Recommendation	Description	Expression	cf. NVL symbolism
A	Strong recommendation	should be	⇑⇑
B	Recommendation	should be	⇑
0	Recommendation open	can be found at	⇔
KKP	Good clinical practice	-	-

In addition to this information, the consensus strength for each recommendation and statement made is also provided to give guideline users an indication of the extent of agreement among all voting participants. Table 7: Measurement of consensus strength in the nominal group process sets out the measurement of consensus strength as recommended by the AWMF in its rules and therefore used for this guideline.

Table 7: Measurement of consensus strength in the nominal group process

Consensus strength	Percentage agreement
Strong consensus	> 95% of those entitled to vote
Consensus	> 75 - 95% of those entitled to vote
Majority approval	> 50 - 75% of those entitled to vote
Dissent / no consensus	< 50% of those entitled to vote

For this guideline, this means that the following table was used to determine the consensus strength (rounded down):

	% agreement	with 20 people, off:	at 19, down:	at 18, ab:	at 17, from	at 16, down:
Strong consensus	**> 95 %**	19	18	17	16	15
Consensus	**> 75 - 95 %**	15	14	13	13	12
majority approval	**> 50 - 75 %**	10	9	9	8	8
no consensus	**< 50 %**	0				

Note: The number of persons differs in the votes because participants had left the room completely (e.g. necessary departures and no available representative) or at short notice and therefore did not attend some votes.

Reasoned **dissent** should, of course, also be documented. Should dissent remain in serious cases, the AWMF suggests the following courses of action:

1. The professional society requests the inclusion of a special vote or the presentation of the justified dissent to the statements that cannot be supported. This special vote is formulated by the professional society itself as a concrete alternative proposal with justification and included in the guideline.
2. The professional society requests clarification in the guideline report that it was involved in the development process but does not support the final text of the guideline. In this case, the guideline text remains unchanged in the version that was consented by the members of the guideline group and adopted by the other professional societies.
3. The professional society withdraws its participation and is no longer named as a participant. In this case, the guideline text also remains unchanged as under 2.
4. The other participating professional societies decide on the continuation of the negotiations or the publication of the guideline without the participation of the professional society that does not support the consensus.

Dissent is indicated in this guideline by the special votes below with the respective reasons. In the short and long versions of the guideline text, a reference to the special votes listed below is listed in a light blue box following the corresponding recommendation. Approval or non-approval of the guideline is marked in Chapter 4.3 Adoption by the boards of the issuing professional societies/organisations the guideline report.

The minutes of the working meetings can be requested from Prof. Christine M. Freitag.

Special vote of the German Music Therapy Society on recommendation 12:
Non-effective autism-specific psychosocial therapies in toddler, preschool, and elementary school age; independent of developmental age and cognitive skills (evidence-based).

Special vote of the DMtG	The DMtG cannot agree to point 4 of recommendation 4.2.2 and therefore submits a special vote against this part of the recommendation. Rationale for deletion to *improvisation-based individual music therapy*: The negative recommendation on improvisation-based individual music therapy is based solely on the outcome of one RCT study (Bieleninik et al., 2017) and excludes the RCTs by Gattino, Riesgo, Longo, Leite & Faccini (2011), Kim, Wigram & Gold (2008) and Thompson G. (2012) reported in the background text. These studies have been included in a Cochrane review on the effectiveness of music therapy for people with ASD (Geretsegger, Elefant, Mössler & Gold, 2014, see also pp. 99, 118 and 200) and have -shown a moderate effect on *generalized social interaction* (*SMD* = 0.71; 95%CI -[0.18, 1.25]) in the meta-analysis. -Furthermore, although the study by Bieleninik et al. (2017), on which the negative recommendation is based, shows a non-significant improvement in *social interaction in the* music therapy group compared to the control group, in the post-hoc analysis significant group differences in responder rates are found in the music therapy group 78/134 [58%] vs. the standard treatment 76/182 [42 %] and a relative risk of 1.39 95%-KI [1.11, 1.74]; risk difference 0.16 95%-KI [0.05, 027], p = . 004. However, this result was not included in the interpretation due to the strict guidelines of the journal (JAMA).

	Taken together, we assess this as follows: *Due to the mixed results on the effectiveness of improvisation-based individual music therapy on social interaction skills in preschool children, no recommendation can be made at this time. Further systematic research is necessary to be able to make an evidence-based statement.* Justification for deleting the negative recommendation on *music therapy involving parents/family* and replacing it with a positive can do recommendation: The negative recommendation on family-based music therapy is inconclusive. The relevant RCT (Thompson, McFerran & Gold, 2014) achieved a high effect size on the primary outcome measure of *social interaction and motivation* (VSEEC: d = 1.96; 95% CI [0.92, 3.00]) in children with absent or limited speech. Although the guideline commentary refers to a risk of bias due to the unblinded data collected, this relates to the power of the study and not the content of the results. With reference to the commentary on the study (pp. 51 and 99 ff.), this allows, in our opinion, a "can" recommendation: *music therapy involving parents/family can contribute to improving the precursor functions of social interaction and communication (jointly directed attention and social reciprocity) in children with language deficits.*

The literature citations for this special report are included in the general literature list at the end of the methods report.

Identical special votes of the German Association for Behaviour Therapy e.V. , the German Society for Behaviour Therapy e.V. and Autismus Deutschland e.V. on recommendations 13,14, 16, 17, 24 and 26 (summarised here)

The German Association for Behaviour Therapy does not agree with recommendation 13 and submits a special vote.

The German Society for Behaviour Therapy e.V. does not agree with recommendation 13 and submits a special vote.

autismus Deutschland e.V. does not agree with recommendation 13 and submits a special vote.

Special vote on recommendation 13

In addition to individual therapy, the promotion of social interaction should also be implemented in a group format and with the involvement of parents/primary caregivers as well as the school, if possible and appropriate.

Reasons for the special vote

There is no empirical basis for limiting the intervention to a short-term small group setting (see also the rationale of the special vote on recommendation 14).

The German Association for Behaviour Therapy does not agree with recommendation 14 and submits a special vote.

The German Society for Behaviour Therapy e.V. does not agree with recommendation 14 and submits a special vote.

autismus Deutschland e.V. does not agree with recommendation 14 and submits a special vote.

Special vote on recommendation 14

There is a wide range of therapeutic approaches available, but only very limited group formats have been investigated in RCT studies. These have shown a certain additional benefit and should be part of the treatment, if possible in addition to individual therapy and parental or institutional counselling.

Recommendation 47 of the present guideline: "In therapies, it should be taken into account that many patients with ASD first need a longer period of therapeutic relationship building and that the implementation of the therapeutic learning content in everyday life is often difficult due to the reduced generalization ability and reduced flexibility. must be taken into account in any intervention with people with ASD.

Reasons for the special vote

The limitation of the therapy to short-term group therapies can neither be deduced from the available studies nor does it appear to be sufficient from clinical experience in the the core symptoms of a *profound developmental disorder.*

Gates et al. (2017, p. 164) summarize the empirical data in the above-mentioned meta-analysis on group therapies as follows: "Parents and investigators report small effects, teachers see

no effects. The effects reported by the individuals concerned related to improved social knowledge, not to behaviour" (own translation). And the second meta-analysis by Reichow et al. (2012, p.2) states, "There is some evidence that social skills groups can improve social skills in some children and adolescents with ASD. More research is needed to make clearer recommendations, especially regarding quality of life improvement."

From clinical experience, the following picture emerges: "The boom in group therapy also has to do with our research landscape, since 3-6 months are manageable and easier to evaluate than longer, individually tailored and more intensive interventio ns. The complex and profound symptoms usually require longer-term treatment and the evidence-based effects achieved in the short term are by no means sufficient to change the reality of the lives of those affected sufficiently and in the long term (Lehmkuhl 2020).

Detailed justification for the special vote on recommendation 14:

Clinical experience: Individual therapy is indispensable, group therapy should be a building block!

If the recommendations were really implemented as they are formulated, the therapeutic care of people with ASD would be considerably restricted and this group of people would be cared for much more narrowly than, for example, patients with other disorders. Even if there is evidence for group therapies for depression, eating disorders, obsessive-compulsive disorders, anxiety disorders, etc., this is not the case. Although there is evidence for group therapy for depression, eating disorders, obsessive-compulsive disorders, anxiety disorders, etc., no guideline calls for preferential treatment in a group setting. And then, in the case of a profound developmental disorder, the core symptomatology is to be addressed in a group setting in 3 months!

From many years of clinical experience, many children, adolescents and adults with ASD cannot be won over for a group initially. First of all, the "development of a coherent self- and disorder concept" is of central importance and, building on this, the strengthening of therapy motivation. For many patients, the deficits in communication and interaction must first be addressed in the protected setting of individual therapy, where initial skills are practiced and then generalized in the group setting. The same applies to dealing with repetitive behaviour, reactions to change, narrow interests, etc., which can only be dealt with in a rudimentary way in a group setting.

It takes much more time than 3-6 months to implement sustainable group training in the clinical setting.

The generalisation of the social skills taught in a group needs time and professional support (see above and cf. recommendation 47). Everyday social life is highly demanding and stressful for many people with ASD. Their perception and cognitive processing structure make it difficult to process social stimuli and build up social skills. Generalization of what is learned is difficult for people with ASD. It is possible that a comprehensive generalisation of knowledge about social behaviour cannot succeed at all, but can only take place in partial areas and for a limited period of time.

Parental support alone in generalizing the group training effects (with homework) is not enough and there is a risk for overload.

In the case of adolescents, support from parents is only possible to a limited extent.

For the development of an adult group (independent participation) additional time is required until all participants have integrated the group appointment into their everyday life and participate regularly.

Adults with ASD are often socially isolated. This creates an additional risk that training effects in a time-limited group setting will fizzle out.

The study situation

The available studies and meta-analyses indicate with small to medium effect sizes that group therapy is superior to the respective control conditions in the studies, particularly for the improvement of social interaction and communication. The effect sizes for so-called GSSIs (group-based social skills interventions) are in the medium range (g = 0.51, 95% CI [0.30, 0.72], p < 0.001); Gates et al., 2017 & ES = 0.47, 95% CI [0.16, 0.78], p = 0.003; Reichow et al., 2012).

However, the meta-analyses by Gates et al. (2017) and Reichow et al. (2012) also clearly point out limitations of the evidence. These are not taken into account in the formulation of the recommendations.

Our reasons for the special vote:

1. The **quality of evidence is rated as low in** the meta-analysis by Reichow et al. (2012; cited in the guideline) for the 5 studies included (also in Gates et al.). The associated increased risk of bias (RoB) arises mainly from expectancy effects (e.g. non-blinded parent judgment - and a non-blinded outcome evaluation; Gates et al. 2017; Freitag et al., 2016; Reichow et al., 2012; Frankel et al., 2010; all cited in the guideline) and publication bias (Gates et al., 2017). As a result, there is a risk that effects will be overestimated! Blinding of outcome measures is explicitly required in the present guideline, e.g., with regard to music-assisted therapies (guideline "Autism Spectrum Disorders in Childhood, Adolescence, and Adulthood; Part 2: Therapy", p. 120).

2. The **generalization of training effects** is **considerably jeopardized** by the recommendations of this guideline, to which the special vote refers. In some studies, the effects show stability over 3 months. Longer periods were not investigated. Soorya et al. (2015; cited in the guideline) compared behavioural therapy-based autism-specific social skills training with a play group as a control condition. After 3 months, no effect of the intervention was found (in a reduced sample).

   Gates et al. (2017) summarize that the effects of interventions to improve social skills do not generalize to school settings and self-assessment of social behavior of individuals with ASD.

   The **effects** reported by Gates et al. (2017) **on the non-blinded self-assessment** of individuals with ASD (g=0.92, 95% CI [0.58, 1.62], p< .0001) are mainly due to an increase in social **knowledge (g=1.15, p<0.01).** There is limited evidence that this gain in knowledge has an impact on the social behaviour **("social performance"; g=0.28, p=0.31) of** individuals with ASD (Gates et al., 2017; Reichow et al., 2012; Frankel et al., 2010). However, this must be precisely the goal of an intervention (Jonsson et al., 2016).

   In another meta-analysis of 15 RCTs on social skills training, Jonsson, Olsson, and Boelte (2016) conclude: "It was not evident from the trials to what extent acquired social skills were enacted in everyday life and maintained over time. We conclude that the generalizability of the accumulated evidence is unclear and that the determinants of external validity are often inadequately reported." (S. 295).

3. One **RCT on individualized support** reported a positive effect with **blinded, systematic behavioral observation as an outcome** (d = 0.34, 95% CI [0.06, 0.63], p = .016); Morgan et al., 2018; cited in the guideline) between school-based individualized training and Internet-based individualized training in favor of school-based training. Thus, there is evidence that individual settings can also contribute to positive changes in social skills promotion, and even with blinded behavioral observation as an outcome (there is a much lower risk of bias here). Blinded behavioural observation as an outcome is an important requirement for further research (Freitag et al., 2016).
4. The **conditions of the control groups differ considerably from each other**. In Frankel et al. (2010), a treatment group is compared with a delayed-start waiting group. In Gates et al. (2017) and Reichow et al. (2012), no detailed information is provided on the interventions in the control groups (waiting list or no treatment). In Soorya et al. (2015), two group designs are compared. The study results do not allow any conclusions to be drawn about the effects of individual therapies to promote social interaction and com m unication.
5. The samples are selective. In Gates et al. (2017), the analysis of moderator variables could only be examined for the outcome self-judgment. Here, the factors gender, cognitive and verbal skills showed no influence. For all other outcomes, the moderator variables could not be examined for statistical reasons (Gates et a., 2017). As **comorbid disorders** were an exclusion criterion in many studies, the effects can only be applied to this group of people to a limited extent. The following comorbid disorders were exclusion criteria in the study by Freitag et al. (2016): "... full scale IQ < 70, schizophrenia, bipolar disorder, social phobia, obsessive compulsive disorder, major depressive disorder with suicidal ideation or any personality disorder as well as aggressive behavior or any severe neuro logical or medical condition interfering with group therapy" (p. 597). The majority of individuals with ASD suffer from comorbid disorders. Gates et al. (2017) state, "Therefore, there is evidence to suggest that participants with (versus with out) psychiatric comorbidities (that is, the preponderance of ASD youth seeking GSSIs) should show less improvement in social competence following GSSIs" (p. 166/167).
6. Also for the second core area 'Repetitive behaviour, special interests and sen soric hyper-/hyporeactivity' (chapter C.4.3; Guideline "Autism Spectrum Disorders in Childhood, Adolescence and Adulthood; Part 2: Therapy", from p. 179), the recommendation is given from school age onwards for persons with ASD and without a reduction in intelligence to use the above-mentioned therapy methods, i.e. in plain language the above-mentioned group therapy should primarily be carried out for this wide range of sometimes severe symptoms, although these symptoms were not a direct therapy goal. In Freitag's study, no effects of the intervention on this area were found (ES = 0.11, 95% CI [-1.7, 0.7], p = 0.42; Freitag et al., 2016).

It is noted that the amount of isolated social skills training is far from sufficient to change the social behavior of many individuals with ASD (Frankel et al., 2010).

There is an urgent need for **more research** in this area,

- which covers both **group and individual interventions** to improve social interaction and communication,
- which in particular **captures generalization effects** and differentiates between an increase in knowledge about social behavior ("social knowledge") and the change in social behavior in everyday life ("social performance"),

- which elaborates which **components of** training have the **greatest possible effects on social behavior for which group of** individuals with ASD (including individuals with comorbid disorders) **under which conditions** (Gates et al., 2017, Reichow et al., 2012; Frankel et al., 2010).

The German Association for Behaviour Therapy does not agree with recommendation 16 and submits a special vote.

The Deutsche Gesellschaft für Verhaltenstherapie e.V. does not agree with recommendation 16 and submits a special vote.

autismus Deutschland e.V. does not agree with recommendation 16 and submits a special vote.

Special vote on recommendation 16

In addition to individual therapy, the promotion of social interaction should also be implemented in a group format and with the involvement of primary caregivers, if possible and appropriate.

Reasons for the special vote

There is no empirical basis for limiting the intervention to the small group setting for this patient group (see also the rationale of the special vote on recommendation 14). On the contrary, there is evidence that CBT in individual contact achieves higher effects than group CBT for people with intellectual impairment (meta-analysis on CBT for people with ASD by Weston et al., 2016).

The German Association for Behaviour Therapy does not agree with recommendation 17 and submits a special vote.

The German Society for Behaviour Therapy e.V. does not agree with recommendation 17 and submits a special vote.

autismus Deutschland e.V. does not agree with recommendation 17 and submits a special vote.

Special vote on recommendation 17

A variety of therapeutic approaches are available, but only very limited group formats have been investigated in RCT studies. These have shown some additional benefit and should, if possible, be part of the treatment alongside individual therapy.

Reasons for the special vote

The limitation of therapies to short-term group therapies cannot be derived from the available studies, nor are short-term group therapies usually sufficient from clinical experience in the treatment of the core symptomatology of a profound developmental disorder. Spain & Blainey (2015, p. 874) concluded in their meta-analysis that group programs *can be* effective. However, no study suggests a primacy of the group measure or even exclusivity.

Clinical experience, on the other hand, suggests that for most adults a longer-term measure (possibly with individual and group elements) is necessary in order to have a sufficient and long-term positive impact on the reality of life for those affected (see also the reasons for special vote 14).

The German Association for Behaviour Therapy does not agree with recommendation 24 and submits a special vote.

The Deutsche Gesellschaft für Verhaltenstherapie e.V. does not agree with recommendation 24 and submits a special vote.

autismus Deutschland e.V. does not agree with recommendation 24 and submits a special vote.

Special vote on recommendation 24

To improve repetitive behavior, disruptive special interests, and sensory hyper- or hyporeactivity, individualized methods should be used that may involve caregivers. In addition to individual therapy, group therapy may also be a component of the overall treatment plan.

Reasons for the special vote

There is no empirical basis for the recommendation to use the above-mentioned therapy methods (i.e. short-term group therapies) for this core area as well. The relevant studies did not target this area (see also the justification of the special vote on recommendation 14).

The German Association for Behaviour Therapy does not agree with recommendation 26 and submits a special vote.

The German Society for Behaviour Therapy e.V. does not agree with recommendation 26 and submits a special vote.

autismus Deutschland e.V. does not agree with recommendation 26 and submits a special vote.

Special vote on recommendation 26

Individualized methods should be used to improve repetitive behavior, disruptive special interests, and sensory hyper- or hyporeactivity. In addition to individual therapy, group therapy may also be a component in the overall treatment plan.

Reasons for the special vote

There is no empirical basis for the recommendation to use the above-mentioned therapy methods (i.e. short-term group therapies) for this core area as well. The relevant studies did not target this area. (see also the justification of the special vote on recommendation 14).

Literature on the special vote of DVT e.V. , DGVT e.V. and Autismus Deutschland e.V.

Frankel, F., Myatt, R., Sugar, C., Whitham, C., Gorospe, C. M. & Laugeson, E. (2010). A randomized controlled study of parent-assisted Children's Friendship Training with children having autism spectrum disorders. *Journal of autism and developmental disorders, 40* (7), 827-842.

Freitag, C. M., Jensen, K., Elsuni, L., Sachse, M., Herpertz-Dahlmann, B., Schulte-Rüther, M. et al. (2016). Group-based cognitive behavioural psychotherapy for children and adolescents with ASD: the randomized, multicentre, controlled SOSTA-net trial. *Journal of Child Psychology and Psychiatry, and allied disciplines, 57* (5), 596-605.

Gates, J. A., Kang, E. & Lerner, M. D. (2017). Efficacy of group social skills interventions for youth with autism spectrum disorder. A systematic review and meta-analysis. *Clinical psychology review, 52,* 164-181.

Jonsson, U., Choque Olsson, N. & Bölte, S. (2016). Can findings from randomized controlled trials of social skills training in autism spectrum disorder be generalized? The neglected dimension of external validity. *Autism, Vol. 20(3)* 295-305.

Lehmkuhl, G. (2020, personal communication).

Morgan, L., Hooker, J. L., Sparapani, N., Reinhardt, V. P., Schatschneider, C. & Wetherby, A. M. (2018). Cluster randomized trial of the classroom SCERTS intervention for elementary students with autism spectrum disorder. *Journal of Consulting and Clinical Psychology, 86* (7), 631-644.

Reichow B, Steiner AM, Volkmar F (2012) Social skills groups for people aged 6 to 21 with autism spectrumdisorders (ASD) (Review). *The Cochrane database of systematic reviews, Issue 7*. art. No.: CD008511.

Soorya, L. V., Siper, P. M., Beck, T., Soffes, S., Halpern, D., Gorenstein, M. et al. (2015). Randomized comparative trial of a social cognitive skills group for children with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 54* (3), 208-216.e1.

Weston, L., Hodgekins, J. & Langdon, P.E. (2016) Effectiveness of cognitive behavioural therapy with people who have autistic spectrum disorders: A systematic review and meta-analysis. *Clinical Psychology Review 49*, 41-54.

4 External evaluation and adoption

4.1 Pilot testing

Pilot testing of individual contents/recommendations of the guideline could not take place due to time constraints. However, readers are invited to contact Prof. Christine M. Freitag if they wish to suggest comments or corrections.

If there is serious criticism, a timely correction will be made instead of waiting until the first update. This has a comparable value as a pilot test.

4.2 External evaluation

An external appraisal was not carried out.

4.3 Adoption by the boards of the issuing professional societies/organisations

As it was not possible to complete all background texts before the consensus conference due to the comprehensiveness of this guideline, these were completed following the consensus conference in 2019 and 2020. The finalized guideline was sent to the boards of the participating professional societies on 07.12.2020.

The following professional societies/organisations/associations have approved the guideline without reservation and only with a few editorial changes: Aspies e.V., BAG, BDK, BKJPP, BVDP, BVKJ, KJPVT, DBL, DGKJ, DGKJP, DGPPN, DGSGB, DGSPJ, DVE, VDS and WGAS.
The following professional societies/organisations/associations submitted special votes on individual recommendations and approved the remaining recommendations: DGVT, DVE, DMtG, Autismus Deutschland.

5 Editorial independence

5.1 Financing of the therapy guideline

The following funding was available for Part II (Therapy) of the S3 Guideline Autism Spectrum Disorders in Childhood, Adolescence, and Adulthood:

Table 8: Financial support for the Guideline

Year	Institution	Date	Total
2016	Federal Working Group of Head Clinicians for Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy e.V.	22.04.2016	2.000,00 €
2018	DGKJP	13.11.2018	7.500,00 €
2018	Autism Germany Foundation	18.12.2018	5.000,00 €
2019	Dr. Elmar and Elli Reiss Foundation	23.09.2019	35.000,00 €
2015-2020	Clinic for Psychiatry, Psychosomatics and Psychotherapy of Childhood and Adolescence, Frankfurt University Hospital	2015 - 2020	~300.000 €

The funding was mainly used for personnel costs (research assistant, student assistants) as well as for the expenses of the working meetings.

Apart from the necessary personnel costs for a research assistant and student assistants, without which the preparation of the guidelines at S3 level would not have been possible, the drafting of the guideline was carried out on a voluntary basis by the respective named members of the steering group, authors and mandate holders in financial independence from the named organisations. The expert work was also carried out on a voluntary basis (unpaid). The travel expenses of the experts/mandate holders were financed privately or by the employers of the individual experts/mandate holders or by the associated professional society.

5.2 Disclosure and management of potential conflicts of interest

All members of the guideline group completed a conflict of interest declaration in writing, including those who joined in the course of the working process. Prof. Freitag and Dr. Vllasaliu reviewed all declarations separately and then went through them together to reach consensus. The declarations of interest by Prof. Freitag and Dr. Vllasaliu were evaluated by Prof. Poustka.

The template of the conflict of interest declaration, the tabular list of conflicts of interest

of all members as well as the assessment can be found in Appendix E. This procedure is based on the recommendations of the AWMF for dealing with conflicts of interest in guideline projects (AWMF, 2012) and was reviewed with Prof. Kopp at the beginning of the consensus conference with the entire group and also asked whether they were still current at that time[15]. Before the consensus conference, the existing conflicts of interest were listed in a table and used for the decisions to be made by consensus in the following way: Individuals who were considered to be biased on certain issues did not have the right to vote in the assessment of evidence and in the decision on recommendations in the relevant cases, but could act as advisory experts in the discussion beforehand. If there was no conflict of interest for the proxy and he/she was present, the professional society still had a vote, otherwise no vote could be taken on this issue.

With regard to declarations of interest, it should be noted that many of those involved in the LL process work in institutions that earn money through the therapy of people with autism spectrum disorder. This means that their own jobs are indirectly and directly secured by the income of the institution due to the therapeutic services for people with autism and their relatives. In this context, the employers of the following persons are (predominantly) financed by the integration aid for people with autism (so-called autism therapy centres [16]): Dr. Lechmann, Dr. Leppert and Dr. Will. The following persons are employed at (university) clinics and work predominantly within the framework of health care (financed by the health insurance funds) with persons with autism: Mr. Bergmann, Dr. Grampp, Prof. Freitag, Dr. Hagenah, Prof. Kamp-Becker, Dr. Ladwig, Prof. Poustka, PD Dr. Sappok, Prof. Sinzig, Prof. Vogeley, Prof. Tebartz van Elst. Mixed financing via health insurance funds and integration aid is present in the case of Dr. Hollmann as well as the so-called Autism Therapy and Research Centre16 at the Frankfurt University Hospital (Prof. Freitag). A mixed financing of the employer by integration aid and external companies is present with Mr. Ströhm. The following persons work in practices financed by the health insurance funds: Dr. Büsching, Dr. Englert, Ms. Hiebl, Ms. Löffler-Idel, Dr. Merod, Ms. Snippe, Dr. Schmidt, Dr. Roth-Sackenheim. This background information is added here, as it is not asked for separately in the table recommended by the AWMF.

Most of the participants of the steering group as well as the delegates of the individual professional societies for the votes of the consensus conference have low conflicts of interest. Membership in advisory boards was also rated as "low", as this mainly concerns voluntary work

[15] http://www.awmf.org/leitlinien/awmf-regelwerk/ll-entwicklung/awmf-regelwerk-01-planung-und-organisation/po-interessenkonflikte/interessenskonflikte.html ; last checked on 11/01/2018

[16] Since the term "autism therapy centre" is not a term defined by social law, the term "so-called autism therapy centres" is used here. Therapy for people with autism and their relatives is offered on the one hand by autism therapy centres, but on the other hand also by numerous other institutions of the social and health care system, which is also reflected by the range of professional societies involved in this guideline.

in the Scientific Advisory Board Autismus Deutschland e.V. or with regard to other advisory boards the remuneration was low (< 5000 €). Since there are very few experts on autism spectrum disorders in Germany, all delegates were given the opportunity to vote even if they were members of advisory boards, although the conflicts of interest in individual votes were again explicitly clarified prior to the vote in accordance with the AWMF's rules and regulations.

6 Concept for dissemination and implementation

The finished guideline will be published on the AWMF homepage as well as on those of the participating professional societies.

In addition, the guideline will be presented regularly at congresses of the participating professional societies and will thus flow into the training and continuing education of the respective members.

6.1 Supporting materials for the application of the guideline

An abridged version of the guideline with all important recommendations and statements is still being written.

6.2 Discussion of possible organisational and/or financial barriers to the application of the guideline recommendations

The financial resources that would be necessary for the analysis of the barriers are lacking. The task is therefore not feasible within the framework of the guideline development and would have to be carried out as an independent third-party funded project.

6.3 Metrics for monitoring: quality objectives, quality indicators

The financial resources for this task are also lacking. It is therefore also only conceivable within the framework of an independent third-party funded project.

7 Period of validity and updating procedure

This guideline is valid until its next update. The first update is planned after 5 years. Comments

and suggestions for the update are explicitly welcome and can be sent to Prof. Freitag.

7.1 Date of last content revision and status

The last editorial revision of the guideline took place in March 2021. An update is therefore due in 2026 at the latest.

Literature

APA (ed.). (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR* (4th ed., text revision). Washington, DC: American Psychiatric Association.

AWMF (Association of the Scientific Medical Societies (AWMF) - Standing Commission Guideline, ed.). (2012).*AWMF "Guidelines" rulebook* (1st ed.). Available at http://www.awmf.org/leitlinien/awmf-regelwerk.htm.

AWMF (ed.). (2016). *Autism spectrum disorders in childhood, adolescence, and adulthood: Part 1: Diagnostics:* Association of the Scientific Medical Societies (Registry number: 028-018; S3 guideline). Accessed 20 Jan. 2020. Available at https://www.awmf.org/leitlinien/detail/ll/028-018.html.

AWMF & ÄZQ. (2008). *German instrument for methodological guideline assessment (DELBI): version 2005/2006 + domain 8.* Accessed 14.12.2020. Available at https://www.leitlinien.de/mdb/edocs/pdf/literatur/delbi-fassung-2005-2006-domaene-8-2008.pdf.

Bieleninik, L., Geretsegger, M., Mössler, K., Assmus, J., Thompson, G., Gattino, G. et al. (2017). Effects of Improvisational Music Therapy vs Enhanced Standard Care on Symptom Severity Among Children With Autism Spectrum Disorder: The TIME-A Randomized Clinical Trial.*JAMA, 318* (6), 525-535.

Buchberger, B., Elm, E. von, Gartlehner, G., Huppertz, H., Antes, G., Wasem, J. et al. (2014). Assessing the risk for bias in controlled trials. *Bundesgesundheitsblatt, Health Research, Health Protection, 57* (12), 1432-1438.

Cincinnati Children's Hospital Medical Center, Gray, S. E.; Giambra, B. K.; McGee, S.; Bogenschutz, L.; Hadley, J.; McLeod, S.; Molique, J. & Zimmer, M. (Collaborators). (2011). *Best evidence statement: craniosacral therapy for children with autism and/or sensory processing disorder.* BESt 106. Accessed 04/23/2016. Available at http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/evbased/default.htm.

Cincinnati Children's Hospital Medical Center, Reffitt, H.; Besuner, P. & Blume, G. (Associates). (2012a). *Best Evidence Statement: Speech Therapist Directed use of Video Modeling for Patients with Autism Spectrum Disorder.* BESt 138. Accessed 04/23/2016. Available at http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/best.htm.

Cincinnati Children's Hospital Medical Center, Brevoort, K.; Besuner, P.; Kiger, M. & Reder, R. D. (Associates). (2012b). *Best Evidence Statement: the use of Video-Based Modeling in Teaching Daily Living Skills to Children with Autism.* BESt 136. Accessed 04/23/2016. Available at http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/best.htm.

Downs, S. H. & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality of both randomised and non-randomised studies of health care interventions.*Journal of Epidemiology and Community Health, 52* (6), 377-384.

Falkai, P., Wittchen, H.-U. & Döpfner, M. (Eds.). (2015). *Diagnostic and statistical manual of mental disorders DSM-5®*. Göttingen: Hogrefe.

Gattino, G. S., Riesgo, R. d. S., Longo, D., Leite, J. C. L. & Faccini, L. S.. (2011). Effects of relational music therapy on communication of children with autism: A randomized controlled study.*Nordic Journal of Music Therapy, 20* (2), 142-154.

Geretsegger, M., Elefant, C., Mössler, K. A. & Gold, C. (2014). Music therapy for people with autism spectrum disorder.*The Cochrane database of systematic reviews* (6), CD004381.

Higgins, J. P. T. (Higgins, J. P. T. & Green, S., Eds.). (2011). *Cochrane Handbook for Systematic Reviews of Interventions version 5.1.0 [updated March 2011]*, The Cochrane Collaboration. Accessed 06 May 2019. Available from: www.handbook.cochrane.org.

Higgins, J. P. T., Altman, D. G., Gøtzsche, P. C., Jüni, P., Moher, D., Oxman, A. D. et al. (2011). The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *BMJ (Clinical research ed.), 343*

Hróbjartsson, A., Boutron, I., Turner, L., Altman, D. G. & Moher, D. (2013). Assessing risk of bias in randomised clinical trials included in Cochrane Reviews: the why is easy, the how is a challenge.*The Cochrane database of systematic reviews* (4), ED000058.

Johnson, A. & Cincinnati Children's Hospital Medical Center. (2013). *Best Evidence Statement: Adding home-based services to complement center-based intervention for children with autism.* BESt 131. Accessed 04/23/2016. Available at http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/best.htm.

KCE. (2013). *Cochrane risk of bias tool*. Accessed 01/03/2016. Available at http://process-book.kce.fgov.be/node/154.

Kennelly, J. (2011). Methodological Approach to Assessing the Evidence. In A. Handler, J. Kennelly & N. Peacock (Eds.), *Reducing Racial/Ethnic Disparities in Reproductive and Perinatal Outcomes. The Evidence from Population-Based Interventions* (1st ed., pp. 7-19). Boston, MA: Springer Science+Business Media, LLC.

Kim, J., Wigram, T. & Gold, C. (2008). The effects of improvisational music therapy on joint attention behaviors in autistic children: A randomized controlled study.*Journal of Autism and Developmental Disorders, 38* (9), 1758-1766.

Mahajan, R., Bernal, M. P., Panzer, R., Whitaker, A., Roberts, W., Handen, B. et al. (2012). Clinical practice pathways for evaluation and medication choice for attention-deficit/hyperactivity disorder symptoms in autism spectrum disorders.*PEDIATRICS, 130 Suppl 2*, p125-38.

Malow, B. A., Byars, K., Johnson, K., Weiss, S., Bernal, P., Goldman, S. E. et al. (2012). A practice pathway for the identification, evaluation, and management of insomnia in children and adolescents with autism spectrum disorders.*PEDIATRICS, 130 Suppl 2*, 106-24.

MaTHAS. (2014). *Management of autism spectrum disorder in children and adolescents* (Clinical Practice Guidelines). Putrajaya: Malaysian Health Technology Assessment Section (MaTHAS).

NICE (ed.). (2012). *Autism spectrum disorder in adults: diagnosis and management*. London: National Institute for Health and Care Excellence (Clinical Guideline no. 142, last update August 2016). Accessed 18 Nov. 2018. Available at https://www.nice.org.uk/guidance/cg170/resources/autism-spectrum-disorder-in-under-19s-support-and-management-pdf-35109745515205.

NICE (ed.). (2013). *The management and support of children and young people on the autism spectrum*. London: National Institute for Health and Care Excellence (Clinical Guideline no. 170). Accessed 18 Nov. 2018. Available at https://www.nice.org.uk/guidance/cg170.

OCEBM Levels of Evidence Working Group (Oxford Centre for Evidence-Based Medicine, ed.). (2011).*The Oxford 2011 Levels of Evidence.* Accessed 12/14/2020. Available at http://www.cebm.net/wp-content/uploads/2014/06/CEBM-Levels-of-Evidence-2.1.pdf.

Reichow, B., Barton, E. E., Boyd, B. A. & Hume, K.. (2012). Early intensive behavioral intervention (EIBI) for young children with autism spectrum disorders (ASD).*The Cochrane database of systematic reviews, 10,* CD009260.

Remschmidt, H. & Schmidt, M. H. (Eds.). (2017). *Multiaxial classification scheme for mental disorders of childhood and adolescence according to ICD-10: With a synoptic comparison of ICD-10 and DSM-5*® (7th, updated edition). Bern: Hogrefe.

Shea, B. J., Grimshaw, J. M., Wells, G. A., Boers, M., Andersson, N., Hamel, C. et al. (2007). Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews.*BMC medical research methodology, 7,* 10.

Thompson, G. A., McFerran, K. S. & Gold, C. (2014). Family-centred music therapy to promote social engagement in young children with severe autism spectrum disorder: A randomized controlled study.*Child: care, health and development, 40* (6), 840-852.

Thompson G. (2012). *Making a Connection: Randomised Controlled Trial of Family Centred Music Therapy for Young Children with Autism Spectrum Disorder*. PhD thesis, The University of Melbourne. Melbourne, Australia. Accessed 02/28/2020. Available at http://hdl.handle.net/11343/37719.

Volkmar, F., Siegel, M., Woodbury-Smith, M., King, B., McCracken, J. & State, M.. (2014). Practice parameters for the assessment and treatment of children and adolescents with autism spectrum disorder.*Journal of the American Academy of Child and Adolescent Psychiatry, 53* (2), 237-257.

Wittchen, H.-U. (Ed.). (1991). *Diagnostic and statistical manual of mental disorders: DSM-III-R ; translated from the revision of the third edition of the Diagnostic and statistical manual of mental disorders of the American Psychiatric Association* (3rd, corr. ed.). Weinheim: Beltz.

Appendix A: Source Guideline Search

Search strategy and hits as well as inclusion and exclusion criteria for the search for source guidelines

General inclusion and exclusion criteria

Inclusion criteria	
E1	The publications include recommendations for the therapy of autism spectrum disorders
E2	Publication period from 2011
E3	Languages of publication: German, English

Exclusion criteria	
A1	Multiple publication of an already identified guideline without additional information
A2	Previous version of current guideline
A3	draft guideline
A4	Guideline no longer up to date (revision date exceeded or classified as no longer up to date by the authors)
A5	No free full text publication available

Documentation of search hits when searching for source guidelines

Platform	Term	Hit
GIN	autism	25
	autism spectrum disorder	17
	ASD	6
	Childhood autism	4
	Autistic disorder	30
Guidelines.com	*No results for all search terms*	0
National Guideline Clearinghouse	pervasive developmental disorder	10
	PDD	29
	PDD-NOS	1
	Autism	21
	autism spectrum disorder	14
	ASD	6
	Asperger's Disorder	2
	Childhood autism	14
	Atypical autism	1
	Autistic disorder	14
American Academy of Pediatrics (AAP)	Search compatible with Keyword Query Language, therefore search for: *Autism OR Asperger Disorder OR Autistic Disorder AND Guideline* OR Practice Guideline**	56
NICE - National Institute for Health and Clinical Excellence	Autism Guideline/s	53/41
	Autism Practice Guideline/s	49/37
	Asperger Disorder Guideline/s	7/6
	Asperger Disorder Practice Guideline/s	7/6
	Autistic Disorder Guideline/s	8/7
	Autistic Disorder Practice Guideline/s	6/5
AWMF - Association of the Scientific Medical Societies e.V.	Autism Guideline/s	14/14
	Autism Policy/s	8/8
	Autistic disorder Guideline(s)	0/0
	Autistic disorder guideline/s	0/0
	Asperger Syndrome Guideline/s	9/9

	Asperger Syndrome Guideline/s	4/4
American Psychiatric Association Practice Guideline Database	Autism Guideline/s	65/65
	Autism Practice Guideline/s	52/52
	Asperger Disorder Guideline/s	9/9
	Asperger Disorder Practice Guideline/s	9/9
	Autistic Disorder Guideline/s	65/65
	Autistic Disorder Practice Guideline/s	52/52
PubMed	Autism guideline	42
	Autism guidelines	83
	Autism practice guideline	32
	Autism practice guidelines	36
	Autism clinical guideline	13
	Autism clinical guideline	33
	Autism* Guideline	0
	Autism* Guidelines	0
	Autism Consensus Statement	0
	Autism recommendation	13
	Autism standard	174
	Autism Consensus Development Conference	5
	Autism* Recommendation	0
	Autism* Recommendations	0
	Autism* Policy	0
	Autism* Guidelines	0
	Other combinations did not give any results	0

Note: All guidelines were screened for inclusion and exclusion criteria and where they met these, they were rated using the DELBI system (see below).

Appendix B: Evaluation of source guidelines

DELBI Crite-rion	**Minimum1**	AACAP (Volkmar 2014)	AAP ADHD (Mahajan 2012)	BESt Cranio 2011	BESt DailyLife 2012a	BESt Homeba-sed 2013	BESt Video 2012b	MaHTAS 2014	AAP Insomnia (Malow 2012)	NICE 2011 & 2013
Domain 1: Scope and purpose										
1	**4**	1	3	1	3	2	3	3	3	3
2	**3**	2	4	4	3	4	3	4	3	3
3	**4**	3	4	3	3	3	3	3	4	3
Domain 2: Stakeholder participation										
4	**3**	1	1	2	2	2	2	3	1	3
5	**2**	1	1	1	1	1	1	1	1	4
6	**3**	2	3	1	3	2	3	3	3	3
7	**1**	1	1	1	1	1	1	1	4	1
Domain 3: Methodological accuracy in guideline development										
8	**3**	4	4	3	3	3	3	3	2	4
9	**3**	2	4	2	2	2	2	2	4	4
10	**3**	2	2	1	1	1	1	2	2	2
11	**1**	1	2	3	1	2	1	2	1	4
12	**3**	3	2	4	3	4	3	2	1	3
13	**1**	2	2	2	1	1	1	3	2	2
14	**1**	1	2	1	3	3	3	2	1	1
Domain 4: Clarity and design										
15	**3**	1	3	3	3	3	2	3	3	3
16	**2**	2	2	1	2	1	2	2	3	3
17	**3**	4	4	4	4	4	4	4	4	3
18	**2**	1	1	1	2	1	2	1	1	2

DELBI Crite-rion	**Minimum1**	AACAP (Volkmar 2014)	AAP ADHD (Mahajan 2012)	BESt Cranio 2011	BESt DailyLife 2012a	BESt Homeba-sed 2013	BESt Video 2012b	MaHTAS 2014	AAP Insomnia (Malow 2012)	NICE 2011 & 2013
Domain 5: General applicability										
19	**1**	1	1	1	3	2	2	3	3	3
20	**1**	1	1	1	1	1	1	1	1	4
21	**1**	1	1	1	2	2	2	2	1	2
Domain 6: Editorial independence										
22	**3**	1	2	1	2	2	2	2	1	2
23	**3**	3	1	1	2	2	2	2	2	4
Domain 7: Applicability in the German health care system										
24	**1**	1	1	1	1	3	1	2	1	4
25	**3**	1	1	2	3	1	1	3	3	4
26	**2**	1	3	2	2	2	2	3	3	3
27	**1**	1	2	3	3	3	2	3	3	3
28	**1**	1	1	2	2	2	4	3	1	1
29	**3**	1	2	1	1	1	2	3	2	3
Domain 8: Methodological accuracy of guideline development using existing guidelines										
30	**3**	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	1	n.a.	1
31	**3**	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	1	n.a.	4
32	**2**	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	1	n.a.	1
33	**3**	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	1	n.a.	2
34	**3**	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	1	n.a.	1

Notes. [1In] a steering committee meeting on 15 September 2015, all members present went through the DELBI criteria together and decided for each criterion which minimum value the source guidelines should have there. Only then were the guidelines found that met the inclusion criteria rated. Green cells mark the fulfilled criteria and red cells those where the minimum is not met.

Sources: Cincinnati Children's Hospital Medical Center, 2011, 2012a, 2012b; Johnson & Cincinnati Children's Hospital Medical Center, 2013; Mahajan et al, 2012, 2012; Malow et al, 2012; MaTHAS, 2014; NICE, 2012, 2013; Volkmar et al, 2014.

Appendix C: Systematic Searches

Key question	Search terms	Limitations	Search period	Search date
TSF 1: What therapeutic goals can be formulated for ASD? e.g. related to age, cognitive skills and comorbidity as well as other factors: course, quality of life, acceptance of oneself, compensation strategies social skills, autonomy, secondary prevention	Outcome AND Intervention OR Training OR Therapy AND Autism OR Asperger's OR PDD OR Pervasive Developmental Disorder	aggregated evidence (Pubmed: Metaanalysis, Review, Systematic Review; Ebsco: Systematic Review, Meta Analysis); Languages: German, English; Subjects: Human	as of 01.01.2011	09.11.2015
TSF 6: Which therapeutic methods are available for which indications in ASD, and what is their evidence? TSF 7: Which therapeutic procedures have been shown to be ineffective? TSF 8: What adverse effects occur with the different therapeutic procedures?	Outcome AND (Intervention OR Training OR Therapy) AND (Autism OR Asperger's OR PDD OR Pervasive Developmental Disorder)	Languages: German, English; Subjects: Human	as of 01.01.2011	18.01.2016
What expectations do patients, parents/guardians/caregivers have of care?	(autism OR asperger OR PDD OR Pervasive Developmental Disorder) AND health AND care AND (intervention OR treatment OR therapy OR training OR support) AND (parent OR relative OR caregiver OR patient OR affected individual) AND (german OR Germany)	Languages: German, English; Subjects: Human	From 1980	04.04.2016

Key question	Search terms	Limitations	Search period	Search date
TSF 10: How can external and/or autoaggressiveness be treated in ASD?	(autism OR asperger OR PDD OR Pervasive Developmental Disorder) AND (aggression OR aggressive OR irritability OR irritable OR outburst OR temper tantrums) AND (intervention OR treatment OR therapy OR training)	Languages: German, English; Subjects: Human	as of 01.01.2010	22.02.2016
TSF 11: What are the special features of regressive developmental trajectories?	(autism OR asperger OR PDD OR Pervasive Developmental Disorder) AND (regression OR regressive) AND (intervention OR treatment OR therapy OR training)	Languages: German, English; Subjects: Human	From 1980	22.02.2016

Specific searches for certain therapy methods

Procedure/question	Search terms	Limitations	Search period	Search date
Psychosocial Interventions for Social Interaction and Communication	(autism OR asperger OR PDD OR Pervasive Developmental Disorder) AND (intervention OR training OR therapy) AND (social interaction OR communication) AND (clinical trial OR RCT OR (Randomi*ed n3 trial))	Languages: German, English; Subjects: Human	From 1992	03.08.2016
Behavioral therapy and CBT	(autism OR asperger OR ASD OR PDD OR Pervasive Developmental Disorder) AND (intervention OR training OR therapy) AND (behavioral therapy OR CBT) AND (clinical trial OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Music Therapy	(autism OR asperger OR ASD OR PDD OR Pervasive Developmental Disorder) AND (intervention OR training OR therapy) AND (music) AND (clinical trial OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	02.08.2016
Alternative Augmentative Communication	(autism OR asperger OR ASD OR PDD OR Pervasive Developmental Disorder) AND (intervention OR training OR therapy) AND (alternative augmentative communication OR AAC) AND (clinical trial OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Animal based therapy	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (animal assisted OR AAT OR animal facilitated OR Pet) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Neurofeedback	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (neurofeedback OR NFB) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016

Procedure/question	Search terms	Limitations	Search period	Search date
Auditory integration training	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (auditory integration OR Tomatis OR AIT) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	Languages: German, English; Subjects: Human	From 1992	03.08.2016
Gluten and casein	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (diet OR gluten Or casein) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Sensory integration	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (Intervention OR Training OR Therapy) AND ("sensory integration" OR SI) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Psychosocial interventions for repetitive behavior, special interests, and sensory hyper-/hyporeactivity.	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (stereotyped OR sensorimotor OR special interest OR hypersensitivity OR hyposensitivity) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Pathological gambling/ media consumption	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (gambling disorder OR media use) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Affolter	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (affolter) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))	see above	From 1992	03.08.2016
Psychomotor	(autism OR asperger OR ASD OR PDD OR "Pervasive Developmental Disorder") AND (intervention OR training OR therapy) AND (psychomotor OR physiotherapy) AND ("clinical trial" OR RCT OR (Randomi*ed n3 trial))		From 1992	03.08.2016

Appendix D: Brief Examination and Study Extraction Sheet Template

Brief examination: evaluation of the exclusion criteria

for systematic reviews/ meta-analyses

Study:

☐ systematic ☐meta-analysis included

1. DSM III-R upwards used for ASD diagnosis?
–
2. clear description of therapy procedures (setting, duration, intensity, dose, if applicable, etc.) available?
–
3. included studies examine sufficiently comparable therapy methods?
–
4. research question and inclusion criteria were fixed in advance?
–
5. search therme & databases are in it?
–
6. therapy groups described e.g. age, origin, severity, comorbidities, N, gender:
–
7. quality of the included studies is recorded?
–
8. correct meta-analytical evaluation of the data?
–
9. exclusion criteria appropriate (language, sample size...)?
–
10. were all important results/values presented
–
11. standardized conditions for control groups, comparability KG? [17]
–
12. measuring instruments for therapy goals are the same or comparable?
–
13 (list of included and excluded studies available)
–
14. do they only use RCTs or do they separate between the different designs in the analyses?

Exclusion:

☐yes ☐no

Reason:

[17] Mixing the waiting list control group and *treatment as usual in* a meta-analysis was considered permissible. However, if the control group received a different drug or therapy, this must be calculated separately.

Study extraction sheet for primary studies

Guidelines Autism Spectrum Disorders - Therapy Studies

Inclusion criteria for studies extracted: Diagnostic criteria according to DSM III, IV, V, and ICD-10. Books, editorials, commentaries, etc. are excluded. Hierarchical inclusion: RCTs first, CCTs if that is not sufficient, etc.

☐Study included (DSM criterion met ☒)

☐Study excluded, reason for exclusion:

_____

1	**Extract prepared by** (name, place and date)	
General data		
2	**First author, year of publication**	NAME, YEAR ☐ et al.
3	**Full reference**	
4	**Survey country**	
5	**Funding**	☐ not specified ☐ stated:
6	**Language of the Publication**	☐ German ☐ English
7	**Study registration**	☐ no/ no info included ☐ yes **Where:** **Registration Number:**

Study design		
8	**Randomization**	☐ no ☐ yes ☐ not specified
9	**Stratified randomization**	☐ no ☐ yes; ☐ not specified
10	**Generation of the allocation sequence**	☐ computer generated random number ☐ Random number list (created manually) ☐ Pulling envelopes ☐ non-randomised procedure ☐ others: ☐ unclear ☐ not specified
11	**Block randomization**	☐ no ☐ yes; block size: ☐ not specified
12	***Only for drug studies:*** **Secrecy of the allocation sequence**	☐ Sequentially numbered, sealed, opaque envelopes ☐ Central randomization ☐ Open randomized allocation plan ☐ alternating or rotating

		☐ others: ☐ unclear ☐ not specified
13	**Data collection**	☐ retrospective ☐ prospective ☐ unclear
14	**Participating centres**	☐ one centre ☐ several centres (number:)
15	**Number of treatment groups**	☐ one ☐ two ☐ several (number:)
16	**Data structure**	☐ independent ☐ matched ☐ clustered ☐ not specified
17	**Blinding**	☐ open ☐ Patient/parents blinded ☐ Therapist/ investigator blinded ☐ blinded outcome measurement ☐ not specified
18	**Calculation of the sample size**	☐ reported ☐ not reported
19	**Primary and secondary endpoints** **Outcomes (measure-ment instruments)**	☐ defined ☐ not defined
20	**Security analysis**	☐ no ☐ yes was done ☐ not mentioned
21	**Duration of therapy**	
22	**Follow-up months**	Median (Range) ☐ Mean (SD) ☐ not specified ☐ not applicable
23	**Intervention(s)**	Description 1.
24	**Control group(s)**	Description:
25	**Homogeneity of the Collective / Homo-geneity Baseline Chara-cteristics**	☐ not specified ☐ Yes ☐ **No →** **If no: Which characteristic was sign. different?**

Sample description					
26	**If sample description is given for total group only, please enter values here:**				
		Intervention 1	Intervention 2	Intervwention 3	Placebo
27	**Age** (SD)				
28	**Gender**				
29	**Drop-out rate**	☐ End of therapy: Reasons: ☐ Follow-up: Reasons: ☐ not specified	☐ End of therapy: Reasons: ☐ Follow-up: Reasons: ☐ not specified	☐ End of therapy: Reasons: ☐ Follow-up: Reasons: ☐ not specified	☐ End of therapy: Reasons: ☐ Follow-up: Reasons: ☐ not specified
30	**Intelli-gence quotient**	Mean: SD:	Mean: SD:	Mean: SD:	Mean: SD:
32	**Comorbi-dity as in-clusion criterion**	☐ no ☐ yes; which:	☐ no ☐ yes; which:	☐ no ☐ yes; which:	☐ no ☐ yes; which:
33	**Sync and corrections by n17t01 criteria**				
34	**Inclusion-criteria** *(diagnoses, age, etc.)*				

Results on treatment efficacy *Note: Copy the lines again for each outcome!*											
	Primary outcomes (measuring instruments)	**Key** see legend	**Group**	**N**	**Baseline** ☐ Median (Range) ☐ Mean (SD) ☐ Standard Error of Mean	**Post-Treatment** ☐ Median (Range) ☐ Mean (SD) ☐ Standard Error of Mean	**Follow-up** ☐ Median (Range) ☐ Mean (SD) ☐ Standard Error of Mean	**Effect size** **Pre-post** **[95% confidence interval]**	**Effect direction** (what does a higher / lower score mean?)	**Effect size** **Pre-follow-up** **[95% confidence interval]**	**Effect direction** (what does a higher / lower score mean?)
35.1			Intervention					P-value:		P-value:	
			Control								
	Secondary outcomes				☐ Median (Range) ☐ Mean (SD) ☐ Standard Error of Mean	☐ Median (Range) ☐ Mean (SD) ☐ Standard Error of Mean	☐ Median (Range) ☐ Mean (SD) ☐ Standard Error of Mean				
36.1			Intervention					P-value:		P-value:	
			Control								
36.2			Intervention					P-value:		P-value:	
			Control								
Secondary outcomes that were not formulated as objectives in the methods section, but were additionally available as subscales of instruments used and were presented in tabular form:											

37.1			Intervention					p-value.		p-value.	
			Control								

Legend:

☐ 4.2 Social interaction and communication

☐ 4.3 Repetitive Behavior, Special Interests, Sensory ...

☐ 5.1 Language development disorder

☐ 5.2 Circumscribed developmental disorder of the motor functions Functions

☐ 5.3 Excretory disorders

☐ 6.1 Reduced intelligence

☐ 6.2 Everyday practical skills and adaptive behaviour

☐ 6.3 Regression of skills

☐ 7.1 Opposit. & Aggressive Behaviour/ Social Behaviour Disorders.

☐ 7.2 ADHD/ hyperactive behaviour

☐ 7.3 Anxiety disorders

☐ 7.4 Depressive episodes, recurrent depressive disorder

☐ 7.5 Obsessive-compulsive disorder

☐ 7.6 Tic disorders

☐ 7.7 Sleep disorders

☐ 7.8 Eating disorders

☐ 7.9 Psychotic disorders

☐ 7.10 Bipolar disorders

☐ 7.11 Personality disorders

☐ 7.12 Addictive disorders

☐ 7.13 Abnormal habits and impulse control disorders;
esp. patholog. Gambling and patholog. Media consumption

Results on biological markers	
38	☐ yes, reported ☐ no, not reported If so, please copy the most important table/values into here:

Results dichotomous data		
39	**Outcome**	
40	**Patients per group**	
41	**☐ events** **☐ event rate**	
42	**Outcome definition**	

Results on adverse effects		
43	**Undesirable Effects**	☐ yes, reported ☐ no, not reported
44	**If yes: Which ones?**	

Summary assessment		
45	**Comments** *Information on conspicuous positive and/or negative aspects with regard to study design, conduct and analysis (e.g. inappropriate hypothesis, lack of blinding in RCTs, inadequate statistical procedures).*	
46	**CEBM level (2011)**	

STUDY QUALITY RANDOMIZED-CONTROLLED STUDIES

The Cochrane Collaboration's tool for assessing Risk of Bias [18]

Randomized Controlled Trials- Translation

Bias	Author's verdict	Supporting arguments	Support
Randomization (Selection Bias)	• low risk of bias • high risk of bias • unclear risk of bias		*Describe the method chosen for the random sequence in enough detail to be able to decide whether comparable groups have emerged.*
Hidden allocation/ hidden assignment (selection bias)	• low risk of bias • high risk of bias • unclear risk of bias		*Describe the hidden assignment in sufficient detail to assess whether the assignment to the intervention could have been anticipated before or during recruitment.*
Blinding of subjects and personnel (performance bias)	• low risk of bias • high risk of bias • unclear risk of bias		*If available, describe the methods used to blind patients and staff to the intervention group. Also note any information on whether blinding was effective. If applicable, assess each outcome individually.*
Blinding of the result evaluation (detection bias)	• low risk of bias • high risk of bias • unclear risk of bias		*If available, describe the methods used so that the evaluators did not know to which therapy group the subject belonged. Also note any information on whether blinding was effective. If necessary, evaluate each outcome separately.*
Incomplete results (Attrition Bias)	• low risk of bias • high risk of bias • unclear risk of bias		*Describe the completeness of the data for the key outcomes, including loss to and exclusion from analyses. Note whether both are reported, the numbers per group, reasons; if applicable, also report the re-inclusion of Pbns in the analyses.*
Selective reporting (reporting bias)	• low risk of bias • high risk of bias • unclear risk of bias		*Indicate the extent to which there is the possibility of selective presentation of results by the authors and what was found.*
Other bias	• low risk of bias • high risk of bias • unclear risk of bias		*Note other important points that could have led to bias in the data and have not been mentioned so far.*

[18] Template and explanatory notes taken from http://processbook.kce.fgov.be/node/154, 01.03.1016

Possible approach for *summary assessments of* results (in all domains) within and between other studies

risk of bias	Interpretation	Within the study	Between studies
low risk of bias	Possible bias probably does not/slightly influence the result	Low risk of bias in all core areas.	Most of the information comes from studies with low risk of bias.
unclear risk of bias	Possible bias casts doubt on the result	unclear risk of bias in one or more core areas	Most of the information comes from studies with low or unclear risk of bias.
high risk of bias	Possible bias that greatly weakens the credibility of the results.	High risk of bias in one or more core areas	The proportion of studies with a high risk of bias sufficiently influences the interpretation of the results.

Overall rating: _____Risk of Bias

STUDY QUALITY NON-RANDOMIZED CONTROLLED STUDIES

Risk-of-bias instrument building on . Adapted and rated according to . Two items were removed (items 28 and 29 in Kennely, 2011). These relate to randomisation and are not relevant as this tool is only used for non-randomised studies.

Sources:

Downs, S. H., & Black, N (1998). The feasibility of creating a checklist for the assessment of the methodological quality of both randomised and non-randomised studies of health care interventions. Journal of Epidemiology & Community Health, 52(6), 377-384.

Kennelly, J. (2011). Methodological Approach to Assessing the Evidence.Kennelly J. (2011) Methodological Approach to Assessing the Evidence. In A. Handler, J. Kennelly, & N. Peacock (Eds.), Reducing Racial/Ethnic Disparities in Reproductive and Perinatal Outcomes: The Evidence from Population-Based Interventions (1st ed., pp. 7-19). Boston, MA: Springer Science+Business Media LLC.

Checklist Downs & Black - Reporting		
1	*Is the hypothesis/aim/objective of the study clearly described?* Is the hypothesis/intention/objective of the study clearly described?	☐ no (0) ☐ yes (1) **Description:**
2	*Is the underlying theory described?* Is the underlying theory presented?	☐ no (0) ☐ yes (1)
3	*Are the main outcomes to be measured clearly described in the Introduction or Methods section?* Are the primary and secondary outcomes clearly described in the Introduction or Methods section?	☐ no (0) ☐ yes (1)
4	*Are the characteristics of the patients included in the study clearly described?* Is there a detailed sample description in **all groups** (gender, age, drop-outs, ...)?	☐ no (0) ☐ yes (1) **Notes:**
5	*Are the interventions of interest clearly described?* Are the interventions clearly described? - Placebo and intervention should be described precisely.	☐ no (0) ☐ yes (1)
6	*Was exposure to the intervention measured?* Was it stated how long the intervention was implemented in practice in the end? (e.g. a one-week training course of 2 hours is only carried out for an average of 1.2 hours per week due to absences).	☐ no (0) ☐ yes (1) **Notes:**

7	*Are the distributions of principal confounders in each group of subjects to be compared clearly described?* Are possible confounding variables clearly described? - Are possible effects of the confounding variables also discussed?	☐ no (0) ☐ yes (1) **Confounding variables:**
8	*Are the main findings of the study clearly described?* Are the results for the primary and secondary outcomes stated?	☐ no (0) ☐ yes (1)
9	*Does the study provide estimates of the random variability in the data for the main outcomes?* Are measures of dispersion provided for the primary and secondary outcomes?	☐ no (0) ☐ yes (1)
10	*Have all important adverse events that may be a consequence of the intervention been reported?* Have any adverse events that may be a consequence of the intervention been reported? Was there an enumeration?	☐ no (0) ☐ yes (1) **Adverse events:**
11	*Have the characteristics of patients lost to follow-up been described?* Were the characteristics of patients who were no longer included in the follow-up survey reported?	☐ no (0) ☐ yes (1)
12	*Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 001?* Were the exact p-values reported for the primary and secondary endpoints - except when p<0.001?	☐ no (0) ☐ yes (1)
Checklist Downs & Black - External validity		
13	*Were the subjects asked to participate in the study representative of the entire population from which they were recruited?* Were the study participants representative of the source population?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
14	*Were those subjects who agreed to participate representative of the entire population from which they were recruited?* How large is the proportion of participating patients in relation to the number of patients recruited? Were the main confounding factors equally distributed between the sample and source populations?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**

15	*Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive?* Are the staff, places, and facilities where the patients were treated representative of the treatment the majority of patients receive?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
16	*Were the screening criteria for study eligibility specified?* Are inclusion and exclusion criteria comprehensively reported?	☐ no (0) ☐ yes (1)
Checklist Downs & Black - Internal validity		
17	*Was an attempt made to blind study subjects to the intervention they have received ?* Were the participants blinded to the intervention they received?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
18	*Was an attempt made to blind those measuring the main outcomes of the intervention?* Was the outcome measurement blinded?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
19	*Were appropriate methods used to account for any biases related to differential ascertainment of the outcome in groups with or without the intervention?* Was sampling bias differentially tested & corrected, i.e., was care taken to ensure that subjects had equal probability of being assigned to one of the groups?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
20	*Were appropriate methods used to adjust for the differences between groups with and without the intervention (to control for selection bias)?* Was selection bias controlled, i.e., was it ensured that baseline differences between groups were not included as an effect?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
21	*If any of the results of the study were based on "data dredging", was this made clear?* Were unplanned analyses subsequently identified as such? If there were none, answer yes.	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
22	*In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls ?* Were follow-ups of the same length for all participants? If not, was this adjusted, for example, with a survival analysis?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
23	*Were the statistical tests used to assess the main outcomes appropriate?*	☐ no (0) ☐ not detectable (0) ☐ yes (1)

	Were the statistical tests for the primary and secondary outcomes appropriate? Only check "no" if there are clear indications of errors.	**Notes:**
24	*Was compliance with the intervention/s reliable?* Were the participants compliant? If there was contamination, tick "no". If misclassifications reduced a possible effect, "yes" can still be ticked.	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
25	*Were the main outcome measures used accurate (valid and reliable)?* Were reliable and valid outcomes measured for primary and secondary endpoints? For recognised outcomes, "yes" can be ticked, even for clearly described outcomes.	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
26	*Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population?* Were the patients in the different groups recruited from the same population (e.g. same hospital)?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
27	*Were study subjects in different intervention groups (trials and cohort studies) (or were the cases and controls (case-control studies)) recruited over the same period of time?* Were subjects in all groups surveyed over the same time period?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
28	*Were study participants in the research or evaluation unaware of the study hypotheses?* Were the subjects unaware of the hypotheses?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes**:
29	*Was there adequate adjustment for confounding in the analyses from which the main findings were drawn?* Were the results adequately adjusted for confounding variables?	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**
30	*Were losses of patients to follow-up taken into account?* Were losses of patients to the follow-up measurement taken into account? If no information is given, tick "not	☐ no (0) ☐ not detectable (0) ☐ yes (1) **Notes:**

	ascertainable", If the proportion of lost patients was too small to influence the result, "yes".	
31	*Did the study mention having conducted a power analysis to determine the sample size needed to detect a significant difference in effect size for one or more outcome measures?* Was a power analysis performed for one or more outcomes to determine the necessary sample size?	☐ no (0) ☐ yes (1) ☐ yes, two or more outcomes (2) **Notes:**

Total score: ___ out of a possible 31 points

This corresponds to a _____ study quality.

(21-31 points "good", 15-20 points: "acceptable", <15 points: "poor")

Breakdown by domain:

Reporting Score: ___ out of a possible 12 points

External validity: ___ out of a possible 4 points

Internal validity: ___ out of a possible 15 points

Appendix E: Conflict of Interest Declaration

Declaration of interests

Autism spectrum disorders in childhood, adolescence and adulthood

Part 2: Therapy, AWMF register number: 028-047

for the hands of

Leonora Vllasaliu &

Prof. Christine M. Freitag

Preliminary note

All members of the Guideline Group are required to complete the Declaration of Interests below. The declaration is made to the Guideline Coordinator. This should be done at the beginning of the guideline project or at the time when the members confirm their participation in the guideline project to the coordinator. For longer-term projects, the declaration must be renewed once a year until the guideline development is completed, or at least before consensus is reached.

All interests are to be listed in the declaration, irrespective of whether or not the person making the declaration sees a thematic link to the guideline or a conflict of interest. Whether conflicts of interest exist and whether the required neutrality for the participation in the guideline development is thereby questioned or in which specific areas/questions of the guideline the professional judgement of an expert could be influenced by secondary interests is to be evaluated by a third party and discussed in the guideline group. The declaration concerns interests within the **current year as well as the past 3 years.**

The originals of the statements remain confidential with the guideline coordinator. The contents of the declarations are to be openly presented in a standardised summary in the long version of the guideline or in the guideline report. In addition, the procedure for collecting and evaluating the declarations and the results of the discussion on the handling of conflicts of interest are to be presented.

Explanation

1. general information

Name, first name, title		
Employer / Institution	Currently	Earlier(s) within the current year or the previous 3 calendar years
Position / Function in the institution		
Address		
e-mail address		
If you have any queries, please contact us by telephone at		
Function in the guideline group		
Date		
Period to which the declaration relates		

2. Direct financial interests

Financial relationships with companies, institutions or interest groups in the healthcare sector are recorded here. Have you or the institution for which you work received donations from companies in the health care industry (e.g. pharmaceutical industry, medical device industry), industrial interest groups, commercially oriented contracting institutions, insurance companies/insurance carriers, or from public sponsors (e.g. ministries), self-governing bodies/institutions, foundations, or other sponsors within the current year or the previous three calendar years? Please provide concrete information in the following table for all applicable aspects.

Type of relationship/activity	Name of the cooperation partner(s)	Period of relationship/ Activity [19]	Subject, reference to the guideline [20]	Art of the allowance [21]	Height of the allowance [22]	Receiver [23]
Consultant/expert activity						
Cooperation in a scientific advisory board (advisory board)						
lecturing and/or training						
Authorship/or co-authorship						
Research projects/ Conducting clinical trials						
Ownership interests (patent, copyright, share ownership[24])						

[19] Within the reference period, i.e. the current and the previous 3 years, indicate: from (month/year) to (month/year).
[20] Indication of the topic, in the case of preparations/devices also trade name or name of active substance (free text), additionally indication of a self-assessment of the reference to the guideline: "No" or "Yes".
[21] Fees, third-party funds, non-cash benefits (e.g. personnel or material resources; travel expenses, participation fees, hospitality in the context of events), sales license
[22] Rounded amounts may be indicated (e.g. for contributions > 1000 € to the nearest thousand): The information refers to the total amount of contributions for a specified activity over the recording period, indication: from (month/year) to (month/year). This information will be treated confidentially.
[23] Please indicate: a) if you are the personal recipient of the grant or b) if it is the institution for which you work and you have direct decision-making responsibility within your institution for the use of the grant/funds. If you are not directly responsible for decision-making, no information is required.
[24] Concerns only owner interests in health care; also, information on commingled funds is not required.

3. indirect interests

Personal relationships with healthcare interest groups, "intellectual", academic, and scientific interests or viewpoints, and focus of clinical activities/income sources are recorded here (for the period of the current year or the 3 calendar years prior). This includes those that may be indirectly related to financial personal interests.

- Are you or were you active in scientific societies, professional associations, institutions of self-administration, patient self-help groups, consumer associations or other associations? If yes, in which function (e.g. mandate holder for these/other guidelines, board of directors)?
- Can you name the focal points of your scientific and/or clinical activities? Do you feel that you belong to certain "schools"?
- Did you play a leading role in designing the content of training courses?
- Do you have a personal relationship (as a partner or 1st degree relative) with an authorized representative of a health care business?

Please provide specific information in the following table for all applicable aspects.

Type of relationship/activity	Names / main areas of focus (please specify)	Period of relationship/ Activity [25]	Subject reference to the guideline [26]
Membership/function in interest groups			
Main scientific activities, publications			
Focus of clinical activities			
Lead participation in training/education institutes			
Personal relationship (as a partner or first-degree relative) to an authorized representative of a health care company			

[25] Within the reference period, i.e. the current and the previous 3 years, indicate: from (month/year) to (month/year).
[26] Indication of a self-assessment "No" or "Yes

4. other interests

Do you see any other aspects or circumstances that might be perceived by third parties as limiting your objectivity or independence?

I hereby declare that, to the best of my knowledge and belief, I have listed all circumstances known to me at this time that could possibly lead to a personal conflict of interest in the topic-related participation in the preparation of the guideline. I further declare that I will keep the discussion of other members' declarations in the guideline group absolutely confidential. I am informed that the statements will be published in a standardized summary with the guideline/in an accompanying guideline report, and that the present form will be kept protected from inspection by unauthorized third parties. I hereby agree.

DateSignature

Supplementary notes

- Please fill out the form completely.
- If you are unable or unwilling to provide information on certain questions, please give reasons.
- Please save the completed form and send it to the Guidelines Secretariat: xxx@yyy.zz.

Table for declaring interests and dealing with conflicts of interest

The following is a tabular summary of the declarations of interest, along with the results of the conflict of interest assessment and actions that were decided upon by the LL Group after discussion of the issues and implemented at the consensus conference.

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
Aspies; Sinners	no	no	yes	no	no	no	Aspies e.V. (self-help)	Self-help, **low**
Aspies; Substitution	no	no	no	no	no	no	Aspies e.V. (self-help)	Self-help, **low**
Autism Germany; Leppert	no	yes (without fee): Autismus Deutschland e.V.	yes	no	no	no	Autismus Deutschland, Autismus Elbe-Travemünde; therapeutic management of an autism therapy centre, financed by social and youth welfare offices	Psychosocial therapies, **low**
Autism Germany; Nolte	no	yes (without fee): Autismus Deutschland e.V.	no	no	no	no	Employed by Autismus Deutschland e.V.	Psychosocial care, family members, self-help, **low**
Autism Germany; Diekmann	no	yes (without fee): Autismus Deutschland e.V.	no	no	no	no	Employed by Autismus Deutschland e.V. , Membership VDS	Psychosocial therapies, **low**
BAG KJPP; Englert	yes	no	yes	no	no	no	BAG KJPP (board), DGKJP, DG-Sucht, DG-ESS, Autismus Mittelthüringen e.V. (Board of Directors)	partial inpatient and inpatient therapy, **low**

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
							Head physician child and adolescent psychiatric clinic, financed by health insurance companies	
BAG KJPP; Noterdaeme	yes	no	yes	yes	yes	no	BAG KJPPP, LAG, BAG, WGAS (board of directors); chief physician child and adolescent psychiatric clinic, financed by health insurance funds	Psychosocial and drug interventions, partial inpatient and inpatient therapy, **low**
BDK; Grampp	yes	no	yes	yes	no	no	BDK member Head physician psychiatric clinic, financed by health insurance companies	Nutrition-based therapies, **low** partial inpatient and inpatient therapy, **low**
BKJPPP; Schmidt	yes	no	yes	no	no	no	BKJPP member, anthroposophic medicine Private practice, financed by health insurance companies	Psychosocial and drug therapies, **minor**
BVDP; Roth-Sackenheim	no	no	no	no	no	no	BVDP and DGPPN member Private practice for psychiatry and psychotherapy, financed by health insurance companies	outpatient psychosocial and medication therapy, **low**
BVKJ; Büsching	no	yes	yes	yes	yes	no	BVKJ; Kassenärztliche Vereinigung Westfalen Lippe, Private practice for paediatrics and adolescent medicine, financed by health insurance companies	outpatient psychosocial and medication therapy, **low** Ch 7.13, **low**

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
BVKJ-PT; Kamp-Becker	no	yes (without fee): Autismus Deutschland e.V.	yes	yes	yes	no	BVKJ-PT; WGAS (board), DGKJP Employed at university hospital, financed by health insurance and state contribution for research and teaching	Psychosocial and medicinal procedures, **minor**
DBL; Snippe	no	no	yes	yes	no	no	Board of Directors DBL; Autismus Deutschland Private practice for speech therapy, financed by health insurance companies	Chap. 5.1, **low**
DGKJ; Hollmann	no	no	yes	yes	no	no	Member DGKJ; BVKJ, DGSPJ Head physician at the Children's Neurological Centre, financed by social and youth welfare offices and health insurance companies	outpatient psychosocial and medication therapy, **low**
DGKJP; Friday	no	yes (without fee): Autismus Deutschland e.V.	yes	yes	Yes (IIT, funded by the EU or dFG; no pharma-sponsored studies)	no	Member of BAG, DGKJP, WGAS, DGPPN Clinic Director Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy, financed by health insurance funds; Director Autism Therapy and Research Center, financed by social and youth welfare offices as well as state subsidies for research and education	psychosocial, drug and other therapy, **low**

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
DGKJP; Hagenah	yes	yes	yes	yes	no	no	Member DGKJP, BKJPP, DGESS Employed at university hospital, financed by health insurance and state contribution for research and teaching	psychosocial and drug therapy, **low**
DGPPN; Vogeley	yes	yes (without fee): Autismus Deutschland e.V.	yes	yes	yes	no	Member DGPPN, WGAS Employed at university hospital, financed by health insurance and state contribution for research and teaching	psychosocial and drug therapy, **low**
DGPPN; Can	yes	yes (without fee): Autismus Deutschland e.V.	yes	no	no	no	Member DGPPN	psychosocial and drug therapy, **low**
DGSGB; Sappok	yes	no	yes	yes	yes	no	Member DGSGB, DGPPN Employed at psychiatric clinic, financed by health insurance companies	psychosocial and drug therapy, **low**
DGSGB; Gaul	yes	no	yes	yes	no	no	DGSGB, DGPPN	psychosocial and drug therapy, **low**
DGSPJ; Ladwig	no	no	yes	yes	no	yes	Member DGSPJ, BVKJ Employed at children's hospital, head of social paediatric centre, financed by health insurance companies and social and youth welfare offices	psychosocial and drug therapy, **low**

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
DGVT; Merod	yes	no	yes	yes	no	no	Member DGVT (Board), Director DGVT Training Institute Munich, financed by participants Private practice for psychotherapy, financed by health insurance companies	psychosocial and drug therapy, **low**
DGVT; Will	yes	no	yes	no	no	no	Member DGVT, WGAS, DGPPN, DPtV Private practice for psychotherapy financed by health insurance companies Management of the Outpatient Clinic and Counselling Centre Kiel, the Autism Therapy Centres Neumünster and Lübeck and coordination of therapist deployment in outreach therapeutic care in Schleswig-Holstein for Hilfe für das autistische Kind, Landesverband Schleswig-Holstein e.V.. (from 2019 Autismushilfe Schleswig-Holstein, gGmbH), financed by social and youth welfare offices.	psychosocial and drug therapy, assistance in school and work, **low**
DVE; Löffler-Idel	no	no	no	no	no	no	Member of DVE, teaching in a further education centre for sensory integration training established practice for occupational therapy, financed by health insurance companies	psychosocial and drug therapy, low sensory integration therapy, **low**

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
DVE; Hiebl	no	no	yes	yes	no	no	Member DVE Established practice for occupational therapy, financed by health insurance companies	psychosocial and drug therapy, **low** sensory integration therapy, low
DVT; Lechmann	no	yes (without fee): Autismus Deutschland e.V.	yes	no	no	no	Member DVT, WGAS, Autism Germany Head of autism therapy centre, financed by social and youth welfare office Scientific management VT institutes, financed by participants	psychosocial and drug therapy, **low**
DVT; Ströhm	no	no	no	yes	no	no	Managing director of a further education and organisational consulting company, financed by companies, social and youth welfare offices and participants	outpatient psychosocial and drug therapy, work with relatives, integration services, **low**
DMtG; Miner	no	no	yes	no	no	no	Member DMtG, WGAS Therapeutic management Psychiatric clinic, financed by health insurance companies	(Partial) inpatient psychosocial and medication therapy, **low**
VDS; Prändl	no	no	no	no	no	no	Member VDS Special Education Principal	School issues, **low**
WGAS; Tebartz van Elst	yes	yes	yes	yes	yes	yes	Member WGAS (Board), DGPPN	psychosocial and drug therapy, **low**

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
							Employed at university hospital, financed by health insurance and state contribution for research and teaching	
WGAS; Poustka	yes	yes	yes	yes	yes	no	Member WGAS (Board), DGKJP Director of the Child and Adolescent Psychiatric Clinic at the University Hospital, financed by health insurance funds and state subsidies for research and teaching	psychosocial and drug therapy, **low**
Sinzig	no	no	yes	no	no	no	DGKJP, BAG Chief physician child and adolescent psychiatric clinic, financed by health insurance companies	partial inpatient and inpatient therapy, **low**
Jensen	no	no	yes	no	yes	no	German Society for Medical Informatics, Biometry and Epidemiology GMDS e.V., Head of the Working Group Methodology of Systematic Reviews	none, no vote, not present at the conference
Lipinski	no	no	yes	no	yes	no	Aspies, WGAS, Autism Research Cooperation	Self-help, **low**
Vllasaliu	no	no	no	no	no	no	employed by Prof. Freitag, financed by donations, funds from participating professional societies as well as state subsidies for research and teaching	None no voice

	Consulting and expert activities	Participation in a Scientific Advisory Board (advisory board)	Paid lecturing or training activities	Paid authorship or co-authorship	Research projects / conducting clinical studies	Ownership interests (patent, copyright, share ownership)	Indirect interests	Guideline topics affected by COI1, Classification with regard to relevance, consequence if applicable
							no memberships	

[1] In the tabular summary, only those statements were transferred here for which a thematic reference to the guideline was established after discussion and assessment of the facts disclosed in full according to the AWMF form in the guideline group. The complete statements are deposited in the guideline secretariat. The review was mainly performed by Prof. Dr. Christine M. Freitag and Dr. Leonora Vllasaliu. First, an independent assessment was performed, which was then agreed upon in a consensus meeting. The conflict of interest declarations of Prof. Freitag and Dr. Vllasaliu were in turn reviewed by Prof. Dr. Luise Poustka.

[2] Alternatively, only a "Yes" can be entered and the naming of the companies can be waived.

Further comments: During the consensus conference, Prof. Kopp from the AWMF went through all conflicts of interest again and asked the attendees if there were any, in order to ensure that they were up to date at the time of the votes.

COI = Confilcts of Interest

Versionsnummer: 1.1
version number:

Erstveröffentlichung: 03/2021
Initial release:

Nächste Überprüfung geplant: 03/2026
Review planned: