Supplement 1 Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	5
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	5
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	6
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	6
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Supplement 2
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	6
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	Supplement 4
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	6
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	Not Applicable
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	6
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6 and 7
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Tables 1 to 7
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	Not applicable
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Tables 1 to 7
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	7 to 13

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	14
Limitations	20	Discuss the limitations of the scoping review process.	16
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	16
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	17

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Supplement 2
PNES Systematic Review - date of search: April 14th, 2020 Update September 13th, 2021

Final Searches

Ovid Embase Search

1. exp psychogenic nonepileptic seizure/
2. Psychogenic Nonepileptic Seizure*.tw,kw.
3. Psychogenic Non-epileptic Seizure*.tw,kw.
4. PNES.tw,kw.
5. Pseudo seizure.tw,kw.
6. Pseudoseizure.tw,kw.
7. 1 or 2 or 3 or 4 or 5 or 6
8. ((psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) adj3 (seizures or seizure or Spell or spells or attack or attacks or convuls*)).tw,kw.
9. 7 or 8
10. exp juvenile/
11. exp pediatrics/
12. (Child or Children or Pediatric* or paediatrics or Young or Adolescents or Teenager or Youth).tw,kw.
13. 10 or 11 or 12
14. 9 and 13

Ovid Medline Search

1. Psychogenic Nonepileptic Seizure*.tw,kf.
2. Psychogenic Non-epileptic Seizure*.tw,kf.
3. PNES.tw,kf.
4. Pseudo seizure.tw,kf.
5. Pseudoseizure.tw,kf.
6. 1 or 2 or 3 or 4 or 5
7. ((psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) adj3 (seizures or seizure or Spell or spells or attack or attacks or convuls*)).tw,kf.
8. 6 or 7
9. exp adolescent/ or exp child/ or exp infant/
10. exp pediatrics/
11. (Child or Children or Pediatric* or paediatrics or Young or Adolescents or Teenager or Youth).tw,kf.
12. 9 or 10 or 11
13. 8 and 12

Ovid PsycINFO Search

1. Psychogenic Nonepileptic Seizure*.mp.
2. Psychogenic Non-epileptic Seizure*.mp.
3. PNES.mp.
4. Pseudo seizure.mp.
5. Pseudoseizure.mp.
6. 1 or 2 or 3 or 4 or 5

7. ((psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) adj3 (seizures or seizure or Spell or spells or attack or attacks or convuls*)).mp.
8. 6 or 7
9. (Child or Children or Pediatric* or childhood or paediatric* or Young or Adolescent* or Teenager* or Youth).mp.
10. 8 and 9

CINAHL (EBSCO)
((MH "Adolescence+") OR (MH "Child+") OR (MH "Minors (Legal)")) OR TI ((Child or Children or Pediatric* or childhood or paediatric* or Young or Adolescent* or Teenager* or Youth)) OR AB ((Child or Children or Pediatric* or childhood or paediatric* or Young or Adolescent* or Teenager* or Youth))

AND

TI ((PNES OR Pseudoseizure OR ((Pseudo or psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) N3 (seizures or seizure or Spell or spells or attack or attacks or convuls*)))) OR AB ((PNES OR Pseudoseizure OR ((Pseudo or psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) N3 (seizures or seizure or Spell or spells or attack or attacks or convuls*))))

Web of Science- Limited to 'Article' (Publication Type)
TS=(PNES OR Pseudoseizure OR ((Pseudo or psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) NEAR/3 (seizures or seizure or Spell or spells or attack or attacks or convuls*)))

AND

TS=(Child or Children or Pediatric* or childhood or paediatric* or Young or Adolescent* or Teenager* or Youth)

Cochrane CENTRAL
(PNES OR Pseudoseizure OR ((Pseudo or psychogenic or Non-epileptic or Nonepileptic or Conversion or Dissociative or Somatization or Somatoform or Stress) NEAR/3 (seizures or seizure or Spell or spells or attack or attacks or convuls*)))

AND

(Child or Children or Pediatric* or childhood or paediatric* or Young or Adolescent* or Teenager* or Youth)

Supplement 3 - Inclusion/exclusion criteria for PNES studies in children

Exclusion criteria
• Full text could not be found • Unable to translate article • Article not about PNES • Article not about children • Not possible to separate child data out from a total child and adult sample • Not possible to separate out children with PNES data from children with other functional neurological/conversion disorder • Not possible to separate out children with PNES data from children with other non-epileptic events • Review articles • Letters to editor • Opinions/editorials • Animal models • Conference/Abstracts • Studies focusing on epidemiology with no focus on assessment or management • Surveys about Professional views about PNES in children

Inclusion criteria
• Article is about children 0-17 years • At least 10 children with PNES*# are in sample • Children who have both PNES and Epilepsy • Mixed adult/children where it is possible to separate out children's data

Supplement 4 Data Extraction Document PNES in children Scoping Review

Study Characteristics:

1. Study number _____
2. Authors _____
3. Year of publication _____
4. Study type/ design (Please pick just one in each category)
   4.a Prospective ☐ Retrospective ☐
   4.b. Cohort/Cross sectional ☐ Case-Control ☐ Randomized control studies ☐ Other ☐
   If 'other' please describe _____

5. Study location (city/centre and country) _____and _____
6. Ascertainment source
   - Population-based ☐
   - Hospital or tertiary care clinic ☐
   - Other ☐

   If 'other' please describe _____

7. Study Focus (you may tick more than one)
   Risk Factors for PNES ☐
   Assessment of PNES ☐
   Management of PNES ☐
   Semiology of PNES ☐
   Assessment/Management of psychopathology in children with PNES ☐

Sample Characteristics:

8. Sample size (number of participants (children) with PNES) _____
9. Sample age Range _____ Mean age ____ Median _____ IQR _____
10. Sex - male_____ female_____ Ratio _____
11. Number and Percentage of participants with co-occurring epilepsy: Number _____ Percentage ____
12. Controls -Sample Size_____ Gender Ratio _____ Age range ____

Risk factors for PNES

13. Please indicate if risk factors (maybe reported as stressors/precipitating factors) for PNES were reported in study. Yes ☐ No ☐

If yes please complete the table:

Risk/Precipitating difficulties	Considered in study		Percentage with difficulties	Comment if formal statistical analysis carried out i.e. p values
	Yes	No		
School Related Difficulties				
Stressful family environment including interpersonal difficulties				
Sexual Abuse				
Physical Abuse				
Fear of rejection/Need for Attention				
No cause identified				
Other*				

*If Other please describe

_____
_____
_____
_____

Assessment of PNES in children

14. Definition of PNES used (which criteria were used and what terminology was used)

- *Criteria*

DSM ☐

ICD-10 ☐

Other ☐

None ☐

If 'Other' please describe:

_____

- *Terminology*

Psychogenic non-epileptic seizures ☐

Pseudoseizures ☐

Non-epileptic Attack Disorder ☐

Non-Epileptic seizures ☐

Psychogenic seizures ☐

Functional Seizures ☐

Other ☐

If ‘Other’ please describe:

_____

15. How was PNES assessed? (You may tick more than one)?

Not described ☐

Video EEG ☐

Normal EEG ☐

Clinical judgement ☐

Other ☐

If ‘Other’ please describe:

_____

15. Definition of epilepsy used (what criteria, if any, were used for children with epilepsy?)

_____

_____

___

16. Does study include any comparison between use of video-EEG and any other methods in identification of PNES?

Yes ☐ No ☐

If ‘yes’ describe:

_____

_____

____

17. Does study include any descriptors of semiology that could be used to discriminate between PNES and epileptic seizures?

Yes ☐ No ☐

If 'yes' describe:

_____
_____
____

18. Does study include any descriptors of provocation that could be used to discriminate between PNES and epileptic seizures?

Yes ☐ No ☐

If 'yes' describe:

_____
_____

19. Does study include any descriptors of other methods (e.g. clinical history, response to AEDs) that could be used to discriminate between PNES and epileptic seizures?

Yes ☐ No ☐

If 'yes' describe:

_____
_____
____

Outcome of PNES

20. Does study include reference to any outcome of PNES

Yes ☐ No ☐

If ‘yes’ please answer the following

- Follow up time _____
- PNES free (%)
- PNES Improvement (%) No Improvement (%)
- Unknown lost to follow up

Please describe any factors associated with outcome if described:

_____
_____
____

Management of PNES and associated psychopathology in children

21. Describe how PNES is managed in study (e.g. psychological therapy ,psychopharmacology) in study?

Not described ☐

Effective communication of diagnosis ☐

Psychological therapy ☐

Psychopharmacology ☐

Other ☐

If ‘Other’ please describe:
_____

22. Does study Describe management of children with PNES via CBT versus other psychological approaches (e.g. psychodynamic) or psychopharmacology.

Yes ☐ No ☐

23. Does study Describe Assessment of psychopathology (e.g. depression, anxiety, ADHD, autism) in children with PNES

Yes ☐ No ☐

If 'yes' please describe criteria used and prevalence of difficulties:

Disorder	Criteria			Prevalence
	DSM	ICD	None	
Depression				
Generalised Anxiety Disorder				
Panic				
ADHD				
Autism				
PTSD				
'Other'				

If 'Other' please describe:

_____

24. Was psychopathology measured using a standardised instrument Yes ☐ No ☐

If 'yes' please tick measures were used to measure psychopathology?

Kiddie SADS - Schedule for Affective Disorders and Schizophrenia for School-Age Children	☐
DISC	
CBCL – Child Behavior Checklist	☐
SDQ –Strengths and Difficulties Questionnaire	☐
CDI – Children's Depression Inventory	☐
NDDI-E-Youth	
R-CMAS – Revised Children's Manifest Anxiety Scale Questionnaire	☐
SCARED	
ATA – Advanced Test of Attention	☐
CASI – Childhood Anxiety Sensitivity Index	☐
CSI – Children's Somatization Inventory	☐
BASC-2 Behavior Assessment System for Children, Version	☐
BYI-2 – Beck Youth Inventory – Version 2	☐
TSCC – Trauma Symptom Checklist for Children.	☐
PBI – Parental Bonding Instrument.	☐
CCQ – Children's Coping Questionnaire.	☐

Other	☐

If 'Other' please describe:

_____

25. Does study describe results of assessment of cognitive functioning in children with PNES?

Yes ☐ No ☐

If 'yes' please indicate:

- Proportion of those with PNES with Intellectual Disability _____
- Mean score on a measure of cognition fir those with PNES _____

26. Possible factors associated with psychopathology in PNES if reported

Factors not reported ☐ Yes reported ☐

If reported please fill in below table:

	Significant	Not significant
Gender		
Chronological Age		
Age of PNES onset		
Comorbid epilepsy		
Frequency of PNES		
Sexual Abuse		
Physical Abuse		
Family History of psychiatric problems		
Other		

Supplement 5

Psychogenic Non-epileptic Seizures (PNES) in Young People: Assessment and Management
Delphi Consensus Exercise Round 1

Dear _____

The International League Against Epilepsy (ILAE) Pediatric Psychiatric Issues Task Force is developing recommendations for the assessment and management of children with suspected/confirmed Psychogenic Non-epileptic Seizures (PNES). Young people (children and adolescents under 18 years) with PNES and their families/caregivers report significant issues with assessment, diagnosis and support. Additionally, delays in diagnosis are frequent. Misdiagnosis can lead to inappropriate interventions (antiseizure medication (ASM) use and investigations). Professionals report wanting guidance with respect to approaches to diagnosis and assessment of PNES in children and adolescents. The target audience of these recommendations are clinicians and the aim is to guide them in assessing and supporting young people and families/caregivers with suspected/confirmed PNES.

We have already undertaken a systematic review focusing on studies that examined the assessment and management of PNES in young people. We found limited evidence to guide the development of our recommendations. We are thus also undertaking a Delphi process to inform some of our recommendations. We are asking for your help in completing the attached survey by 30/06/2021. Given your leadership in pediatric epilepsy care, your insights will be vital.

We expect the survey to take 10-15 minutes at the most. Please use XXXX for your **Participant Code** in the survey and know that if you cannot complete it in one sitting, you can return to the survey to pick up where you left off and/or edit previous responses **if you use the same computer and browser** to log into it. After each question, we provide space for you to comment if you wish to do so.

We use the term PNES throughout this process whilst acknowledging that other terms are also in use and may be preferred by some of you. Additionally, with respect to diagnosis, we use the 4 levels of certainty 'possible', 'probable', and 'clinically established' and 'documented' from La France et al. (2013) as noted below:

Diagnostic Level	History	Witnessed event	EEG
Possible	+	By witness or self-report/description	No epileptiform activity in routine or sleep-deprived *interictal* EEG
Probable	+	By clinician who reviewed video recording or in person, showing semiology typical of PNES	No epileptiform activity in routine or sleep-deprived *interictal* EEG
Clinically established	+	By clinician experienced in diagnosis of seizure disorders (on video or in person), showing semiology typical of PNES, while not on EEG	No epileptiform activity in routine or ambulatory *ictal* EEG during a typical ictus/event in which the semiology would make ictal epileptiform EEG activity expectable during equivalent epileptic seizures
Documented	+	By clinician experienced in diagnosis of seizure disorders, showing semiology typical of PNES, while on video EEG	No epileptiform activity immediately before, during or after ictus captured on *ictal* video EEG with typical PNES semiology

We truly appreciate your help and guidance in this process.

Colin Reilly PhD and Kette Valente MD PhD

PARTICIPANT DETAILS

Participant Code: ☐

Sex Female ☐ Male ☐

Age ____years

Medical specialty:

-Neurologist ☐

-Pediatrician ☐

-Psychiatrist ☐

-Psychologist ☐

-Nurse ☐

-Other ☐

Number of years of practice in your specialty: ☐

What percentage of your practice is focussed on?

-Adults ☐

-Pediatrics ☐

-Both ☐

In which ILAE region do you work?

-Africa ☐

-Asia and Oceania ☐

-Eastern Mediterranean ☐

-Europe ☐

-Latin America ☐

-North America ☐

In which country do you work? ☐

Do you work at a dedicated epilepsy centre? ☐ Y/N

How would you describe level of care provided at your primary workplace?

Primary ☐

Secondary ☐

Tertiary ☐

How easy is it to access Video-EEG for your pediatric patients with suspected PNES?

-Easy ☐

-Medium ☐

-Difficult ☐

-Not possible ☐

Comments

Are you involved in the care of young people with PNES? Y/N ☐

If yes, please continue. If no, thank you, you are done.

INITIAL CHECKLIST: This first Delphi survey is designed to gather expert opinion on assessment and management of PNES in young people.

Nomenclature

1. Which of the following terms do you feel is best when describing paroxysmal events thought to be psychogenic in origin in the pediatric population? Please select only one.

   Seizures ☐
   Episodes ☐
   Events ☐
   Spells ☐
   Attacks ☐
   Other ☐

   If 'other', please indicate the name you feel is best:
   _____

2. The word psychogenic is useful when describing children who have seizure like events which are thought to be functional in nature (Please circle your answer).

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

   Please comment if you have chosen 'Disagree' or 'Strongly Disagree'
   _____

3. Please rank the following names for PNES in order of personal preference (1 most preferred and 10 least preferred).
   Please indicate your ranking with respect to other professionals and with patient and family.

Name	With other professionals	With patient and family
Non-Epileptic Seizures (NES)		
Non-Epileptic Attack Disorder (NEAD)		
Functional Seizures		
Psychogenic Non-epileptic Seizures (PNES)		
Dissociative seizures		
Stress seizures		
Psychogenic seizures		
Non-Epileptic events		
Psychogenic Non-Epileptic Events		

Non-Epileptic spells		

If you use a language other than English in your practice, please indicate what other language and the preferred term for PNES in this language

Language

Preferred term for PNES in language professionals

Preferred term for PNES in language patients

Comments _____

Assessment for PNES in the Pediatric Population

Please circle your answer to the following questions

4. The process of assessment of young people with suspected PNES should include taking a comprehensive description of the episodes/events – (e.g. What do(es) the episode look like? When did/does it happen? Who is present? Where does it happen?)

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

5. The process of assessment of young people with suspected PNES should include taking a comprehensive medical/developmental history (e.g. asking about other medical conditions, learning/behaviour, schooling).

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

6. It is important to ask about potential stressors in young person's life (e.g., school/academic difficulties, family difficulties, bullying, previous physical/sexual abuse, trauma).

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

7. With suspected PNES in young people, it is important to ask about other symptoms of conversion disorder/functional neurological disorder (e.g., pain, sensory or motor).

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

8. Parent, self or school report of events are useful in determining if events are psychogenic in nature and can contribute to a 'possible' diagnosis of PNES by a clinician experienced in diagnosis of seizure disorders.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

9. Parent home/school video-recording of events is very important in considering whether events are psychogenic in nature and can contribute to a 'Probable' diagnosis of PNES by a clinician experienced in diagnosis of seizure disorders.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

10. If available, Video-EEG should be used with all young people with suspected PNES and if no epileptic activity is detected during a typical event, then a 'clinically established' and 'documented' PNES diagnosis can be made by a clinician experienced in diagnosis of seizure disorders.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

11. The use of standard techniques (e.g., sleep deprivation, hyperventilation, photic stimulation) is appropriate in an attempt to elicit PNES in children

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

12. The use of invasive provocation techniques (e.g., saline injection) or deceit should not be employed to elicit PNES in young people.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

Communication of a Diagnosis of PNES in the Pediatric Population

13. How do you typically communicate the diagnosis of PNES children and their caregivers? Describe (e.g. with a psychologist/psychiatrist/nurse, terminology used)

_____
_____
_____
_____
_____
_____
_____

14. The involvement of both a pediatric neurologist/epileptologist and psychologist /psychiatrist is necessary when PNES is first diagnosed to coordinate management and follow-up

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

15. It should be made clear to the young person and their family/caregivers that events are not epileptic in nature and that anti-seizure medications are not appropriate treatment*.
*(Unless child also has epilepsy in which case medications would still be appropriate for the epileptic seizures but not the PNES)

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

16. The child (if developmentally and age appropriate) and their parents should be informed of the diagnosis of PNES separately.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

17. In medical records/reports it should always be made clear that PNES refer to events of a psychogenic/functional (and not physiologic) nature that are part of the broader classification of functional neurological disorder/conversion disorder.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

18. A comprehensive plan (written document) should be developed in collaboration with the child and family to inform all relevant health and educational professionals in the child’s network.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

19. A pediatric neurologist (or other professional with expertise in epilepsy) should remain involved for a period of time after the diagnosis of PNES to manage withdrawal of anti-seizure medications, ensure acceptance of diagnosis and avoid further inappropriate investigations.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

Management of PNES

20. A comprehensive management plan for the events at home, school and other relevant locations with clear indications on what supporting adults should do should be developed and agreed upon by all relevant stakeholders.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

21. In the case of young people with both PNES and epileptic seizures, there is a need for the young person, their families/caregivers and supporting educational and health professionals to be made aware of manifestation of both epileptic and non-epileptic events. Management plans for both should be available for all children.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

22. Young people should always be given developmentally appropriate visual/written information about the nature and possible causes of PNES and possible management approaches.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

23. Parents/Caregivers should always be given appropriate written/visual information about the nature, possible causes and possible management approaches.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

24. The decision on treatment modality for PNES in children should take into account the child’s age, cognitive ability and family factors. For younger children there may need to be a focus on behavioural approaches and skill teaching. For older children and adolescents cognitive behavioural therapy may be useful.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

25. Family therapy/counselling should be offered to all families of children with PNES.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

Assessment and Treatment for Comorbid Mental Health Problems

26. All young people with confirmed PNES should be screened for mental health (e.g. depression, anxiety, trauma) and neurodevelopmental (e.g. ADHD, autism spectrum disorder) difficulties.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

27. All young people with confirmed PNES should be assessed for learning/cognitive difficulties.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

28. Young people with PNES who have confirmed mental health or behavioural difficulties should access evidence-based treatments/supports for depression, anxiety ADHD etc.

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	2	3	4	5

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

Please add any other comments in relation to the questions or areas/topics including areas/topics which you believe should be included but are not:

_____

_____

_____

_____

_____

_____

_____

Psychogenic Non-epileptic Seizures (PNES) in Young People: Assessment and Management
Delphi Consensus Exercise Round 2

Dear

The International League Against Epilepsy (ILAE) Pediatric Psychiatric Issues Task Force is developing recommendations for the assessment and management of children with suspected/confirmed Psychogenic Non-epileptic Seizures (PNES). We are very grateful that you have already participated in Round 1 of our Delphi Consensus Exercise. For the majority of questions in round 1 there was sufficient agreement to generate recommendations. There were, however, a small number of questions where sufficient agreement (80% or more indicated agree/strongly agree) was not reached. We have examined the responses to these questions, noted your feedback and made changes to reflect your views. We are now asking for your help with these remaining questions in our survey by 14 December 2021. Given your leadership in pediatric epilepsy care, your further participation and insights will be vital.

We expect the survey to take 5 minutes at the most. Please use XXXX for your Participant Code in the survey, and know that if you cannot complete it in one sitting, you can return to the survey to pick up where you left off and/or edit previous responses if you use the same computer and browser to log into it. After each question, we provide space for you to comment if you wish to do so. It is important to note that in when considering your answers please do not consider resource issues as we want to identify the best possible recommendations without recourse to available resources.

We truly appreciate your continued help and guidance in this process.

Colin Reilly PhD and Kette Valente MD PhD
Co – Chairs International League Against Epilepsy Pediatric Psychiatric Issues Committee

PARTICIPANT DETAILS

Participant Code: ☐

Sex Female ☐ Male ☐

Age ____years

Medical specialty:

-Neurologist ☐

-Pediatrician ☐

-Psychiatrist ☐

-Psychologist ☐

-Nurse ☐

-Other ☐

Number of years of practice in your specialty: ☐

What percentage of your practice is focussed on?

-Adults ☐

-Pediatrics ☐

-Both ☐

In which ILAE region do you work?

-Africa ☐

-Asia and Oceania ☐

-Eastern Mediterranean ☐

-Europe ☐

-Latin America ☐

-North America ☐

In which country do you work? ☐

Do you work at a dedicated epilepsy centre? ☐ Y/N

How would you describe level of care provided at your primary workplace?

Primary ☐

Secondary ☐

Tertiary ☐

This second round of our Delphi survey is designed to gather expert opinion on assessment and management of PNES in young people on questions where agreement (80% indicated agree/strongly agree) was not reached in round 1. For all questions we provide the results of the round 1 exercise.

Nomenclature

1. **Which of the following terms do you feel is best when describing paroxysmal events thought to be psychogenic in origin in the pediatric population? Please select only one.**

   Seizures ☐
   Episodes ☐
   Events ☐

Results of round 1 Delphi exercise:

1. Which of the following terms do you feel is best when describing paroxysmal events thought to be psychogenic in origin in the pediatric population? Please select only one.	Seizures	14.29%
	Episodes	17.86%
	Events	57.14%
	Spells	0.00%
	Attacks	3.57%
	Other	7.14%

2. **The term psychogenic can be perceived negatively or be stigmatizing and should only be used with young people and their family/caregivers if it is felt to be helpful to explain the psychological nature of these events.**

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	**2**	**3**	**4**	**5**

Please comment if you have chosen ‘Disagree’ or ‘Strongly Disagree’

_____

Results of round 1 Delphi exercise:

	Strongly agree/ Agree	Neutral	Agree/ Disagree
The word psychogenic is useful when describing children who have seizure like events which are thought to be functional in nature.	50%	11%	39%

3. **The use of standard techniques (e.g., sleep deprivation, hyperventilation, photic stimulation) is appropriate in the assessment of suspected PNES in children and to provide a differential diagnosis between epileptic and nonepileptic events**

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	**2**	**3**	**4**	**5**

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

Results of round 1 Delphi exercise:

	Strongly agree / Agree	Neutral	Agree/ Disagree
The use of standard techniques (e.g., sleep deprivation, hyperventilation, photic stimulation) is appropriate in an attempt to elicit PNES in children	**61%**	**29%**	**11%**

4. **The use of invasive provocation techniques (e.g., saline injection) or deceit should not be employed in the assessment of PNES in young people**

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	**2**	**3**	**4**	**5**

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

Results of round 1 Delphi exercise:

	Strongly agree / Agree	Neutral	Agree/Disagree
The use of invasive provocation techniques (e.g., saline injection) or deceit should not be employed to elicit PNES in young people.	**71%**	**11%**	**18%**

5. **When considering treatment for children with PNES it is important to consider that the family may need psychological support (e.g., psychoeducation, counselling) and this should be made available, where appropriate**

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	**2**	**3**	**4**	**5**

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

Results of round 1 Delphi exercise

	Strongly agree / Agree	Neutral	Agree/Disagree
Family therapy/counselling should be offered to all families of children with PNES.	**68%**	**25%**	**7%**

6. **It is recommended young people with confirmed PNES should be assessed for learning/cognitive difficulties if it is thought that these difficulties are contributing to the child's PNES or other mental health problems.**

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1	**2**	**3**	**4**	**5**

Please comment if you have chosen 'Disagree' or 'Strongly Disagree'

_____

Results of round 1 Delphi exercise

	Strongly agree / Agree	Neutral	Agree/Disagree
All young people with confirmed PNES should be assessed for learning/cognitive difficulties.	68%	25%	7%

Supplement 6 Characteristics of respondent to Delphi Survey (n=33)

Gender

- Female 58%
- Male 42%

Age

- Range 35-61

ILAE Region

- Africa 6 (18%)
- Asia and Oceania 4 (12%)
- Eastern Mediterranean 3 (9%)
- Europe 8 (24%)
- Latin America 3 (9%)
- North America 9 (27%)

Job Title

- Neurologist 13 (30%)
- Pediatrician 3 (9%)
- Psychiatrist 10 (30%)
- Psychologist 6 (18%)
- Nurse 1 (3%)
- Other 6 (27%) (Social Worker (1), Epileptologist (2) Paediatric neurologist (1)

Years in Practice

- Range 3-39 years Mean 19.5 years

Do you work at a dedicated epilepsy centre? (n=32)

- Yes 18 (56%)
- Non 14 (44%)

How would you describe the level of care provided at your primary workplace?

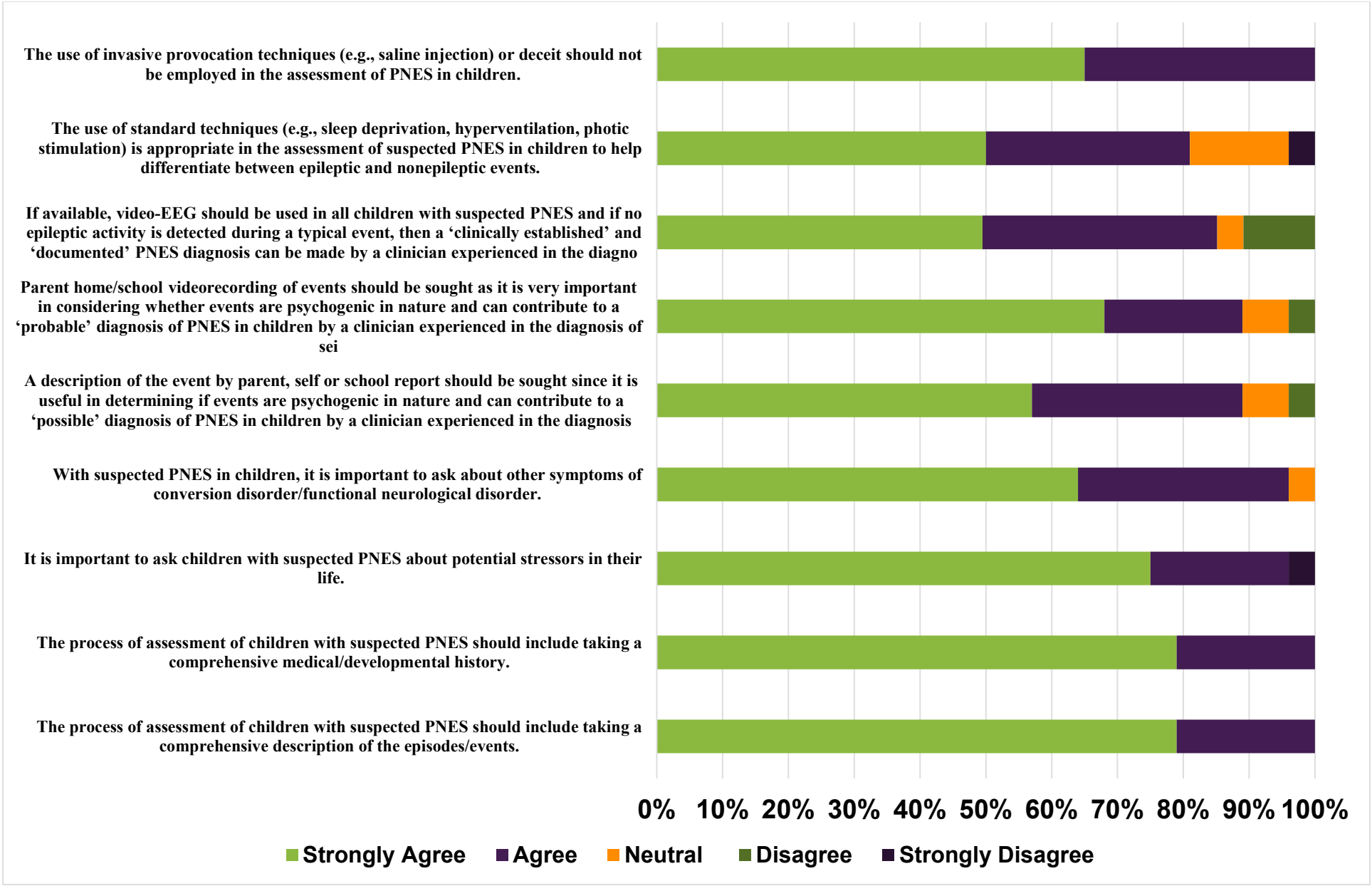
- Primary 4 (12%)
- Secondary 4 (12%)
- Tertiary 25 (76%)

Supplement 7: Rankings of best names for PNES –Delphi Respondents (maximum possible 260 (best), minimum possible 26 (worst))

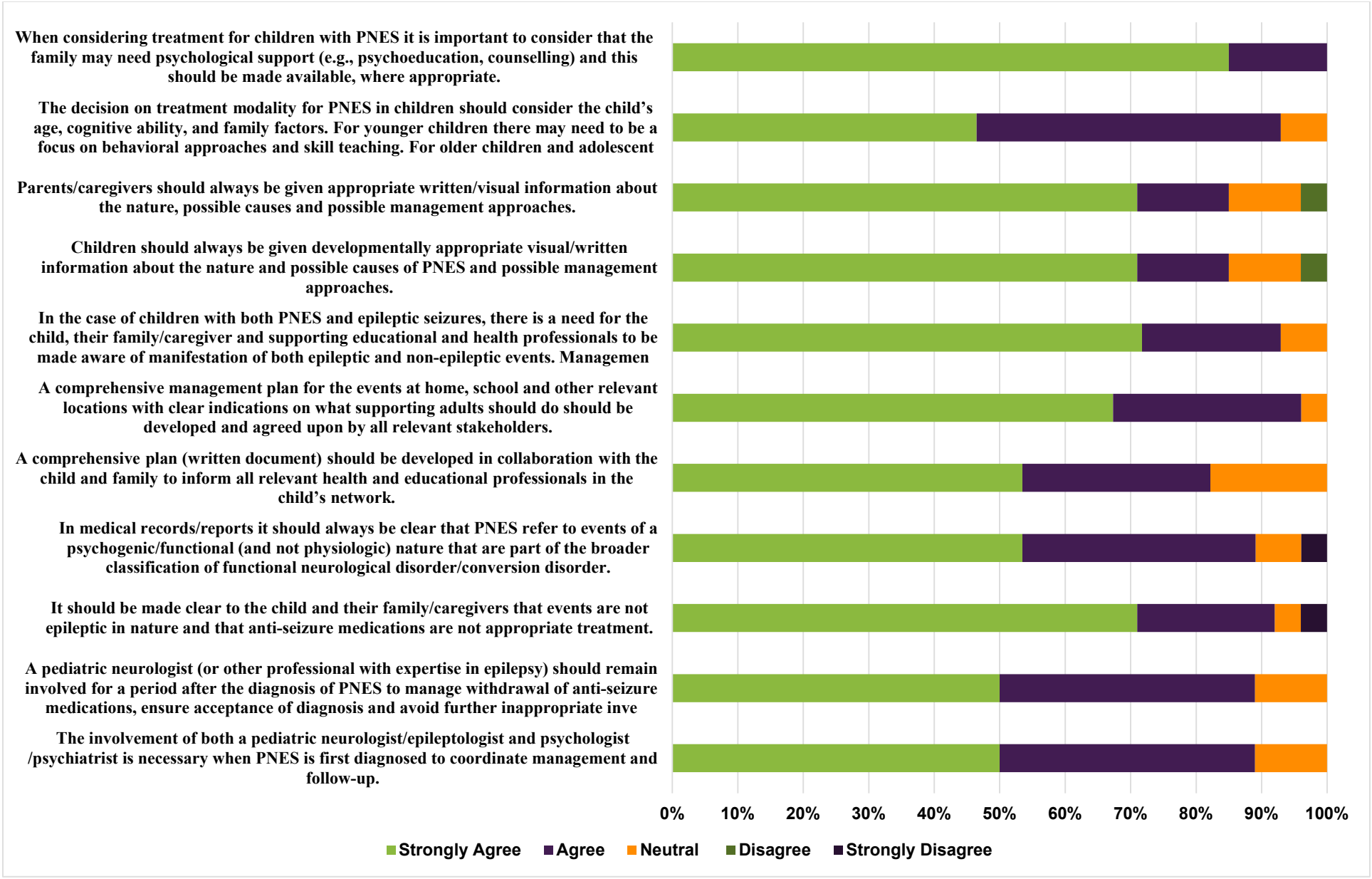
Best Names for PNES

Name with child and family	Votes	With professionals	Votes
1. Non-epileptic events	204	1. Non-epileptic events	198
2. Non-epileptic seizures (NES)	186	2. Psychogenic non-epileptic seizures (PNES)	185
3. Psychogenic non-epileptic seizures (PNES)	164	3. Non-epileptic seizures (NES)	183
4. Functional seizures	163	4. Psychogenic non-epileptic events	158
5. Psychogenic non-epileptic events	147	5. Functional seizures	144
6. Non-Epileptic Attack Disorder (NEAD)	126	6. Non-epileptic attack disorder (NEAD)	127
7. Psychogenic seizures	123	7. Psychogenic seizures	125
8. Stress seizures	113	8. Dissociative seizures	117
9. Non-epileptic spells	107	9. Non-epileptic spells	113
10. Dissociative seizures	104	10. Stress seizures	92

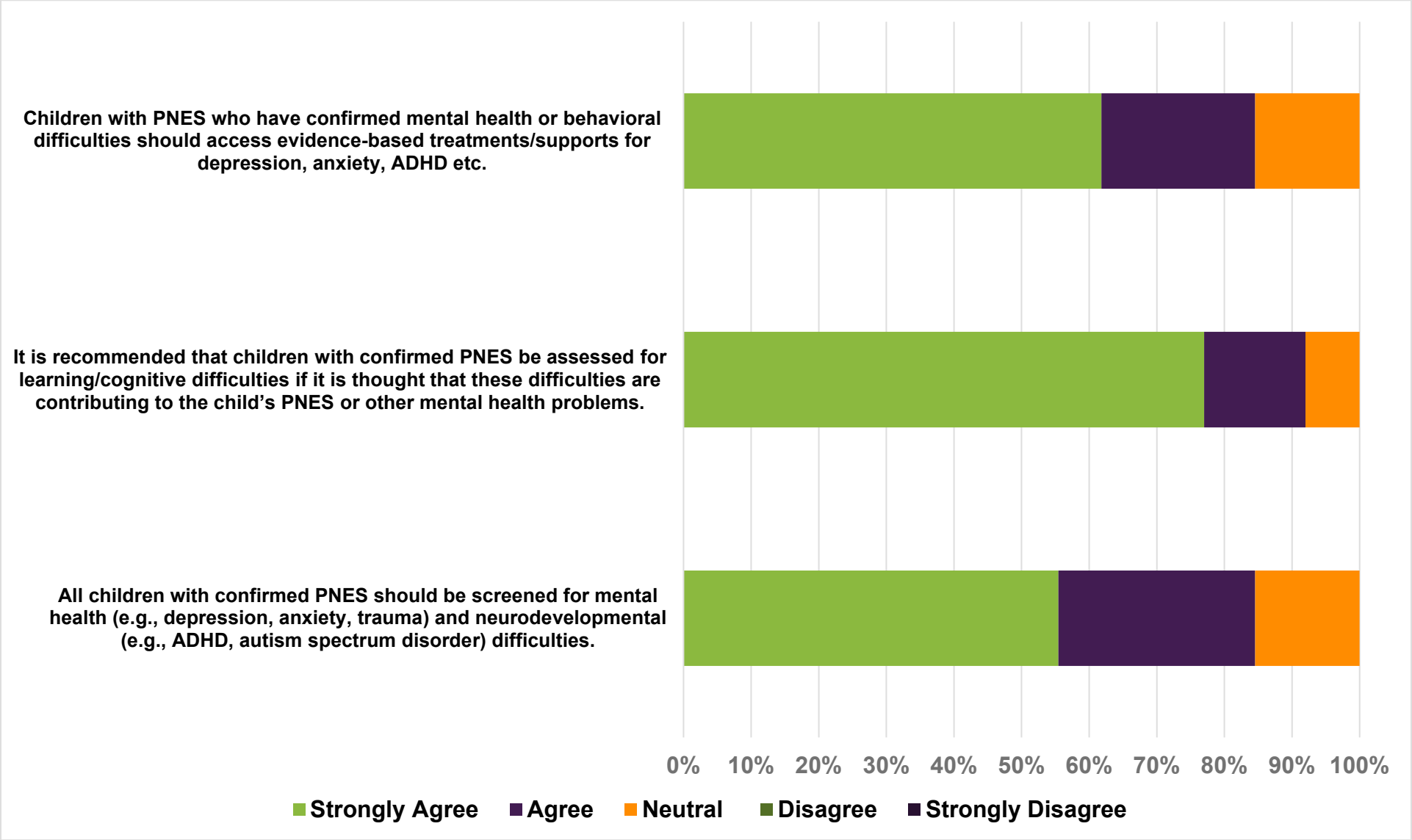
Supplement 8a: Assessment of Children with PNES - Recommendations that reached 80% agreement in Delphi Survey



Supplement 8b: Management of PNES in children - recommendations that reached 80% agreement in Delphi survey



Supplement 8c: Assessment and management of cognitive and behavioural problems in children with PNES – Recommendations that reached 80% agreement in Delphi Survey



Supplement 9 - Studies which described semiology of PNES in children

Author	Year	n	Use of a previously published classification system	Classification system used	Within group comparison or comparison with controls	Main findings regarding semiology of events
Fredwall et al[27]	2021	23	No	NA	No	• Patients presented with a variety of clinical semiology including eleven (48%) patients with generalized convulsive movements as a prominent feature of events.
Fredwall et al[29]	2021	125	No	NA	No	• Semiology described as 'Type of events' and they were: Catatonia (1%), focal movements (13%), generalised convulsive movements (62%) pseudosyncope (1%), staring/unresponsive (22%) and not available
Zhang et al[32]	2021	88	No	NA	No	• Motor symptoms 38% Unresponsiveness 18% Sensory symptoms 27% Visceral symptoms 6% Abnormal behaviours 10%
Terry et al[37]	2020	101	No	NA	No	• Generalized convulsive movements 62 (61%) Staring and unresponsiveness 23 (23%) Focal movements 13 (13%) non-syncopal collapse 1 (1%) Catatonia 1 (1%)
Hansen et al[3]	2020	386	No	NA	Yes - younger vs. older children	• A wide range of semiology was reported • Teens presented more "Asynchronous movements" and "No incontinence/tongue biting" compared to the preteens, whereas the preteens presented more "Emotional features" compared to the teens.
Sawchuck et al[a39]	2020	178	No	NA	Yes – 3 groups – child,	• Adult-onset patients had a significantly higher occurrence of waxing and waning ictal course, side-to-side head movements, generalized/thrashing body movements, eye

					adolescent and adult.	closure, and ictal injury. Significant between-group differences were also found for focal motor movements which were most common among childhood onset patients, and preictal aura, which was most common among adolescent-onset patients. Loss of responsiveness, ictal crying, urinary incontinence, and experience of subjective phenomena (in the absence of loss of responsiveness) were not significantly different across the groups.
Madanna et al[45]	2018	80	Yes	Seneviratne et al 2010	Yes – comparison with three previous studies	• Across most age ranges, the most common semiology noted was dialeptic, except for the 6–7 years age group. It was found that motor events were more commonly seen in boys (p = 0.01). • Rhythmic motor 10% Hypermotor 1% Complex motor 4% Dialeptic 43% 'Aura' 14% Mixed 29%
Kozlowska et al[53]	2017	60	No	NA	No	• Movements (rhythmic, thrashing/kicking, flexion/extension) 25% Syncopal-like events alone 18% Visual blackout, loss of vision or changes in consciousness associated with head dropping 13% Prolonged periods of unresponsiveness 3% Sensory experiences 3% Changes in responsiveness followed by amnesia lasting days or weeks 3% Staring episodes 2% Both movements and syncopal-like events 28% Movements, syncopal-like events and long periods of unresponsiveness 3%

Say et al[60]	2015	62	Yes	Seneviratne et al 2010	Yes - girls vs. boys	• Dialeptic type 31% Rhytmic motor 20% Complex motor 19% Hypermotor 13% Nonepileptic aura 10% Mixed pattern 6% • Tremor was the most prevalent ictal motor sign in the entire sample (27%) and also in both girls (22%) and boys (39%). Atonic falls were significantly more prevalent in girls (34%) compared to boys (5.6%). Girls (84%) were significantly more likely than boys (64%) to have seizures continuing longer than 2 min. Tonic-clonic-like movements of the extremities were significantly more frequent in boys (17%) than girls (2%).
Yadav at al[62]	2015	90	No	NA	No	• Isolated motor phenomenon 36% Isolated cognitive phenomenon (unresponsiveness) 26% Motor + cognitive phenomenon 20% Isolated sensory phenomenon 17 19%
Wadwekar et al[68]	2015	23	Yes	Hubsch et al 2011[116]	No	• Dystonic attacks with primitive gestural activities 1 Pseudosyncope with or without hyperventilation 11 Paucikinetic attacks with or without preserved responsiveness 2 Hyperkinetic prolonged attacks with hyperventilation, involvement of limbs and/or trunk 4 Axial dystonic attacks 4 Un-classified 1
Yi et al[69]	2014	25	No	NA	No	• Generalized tonic-clonic movement 8 Focal tremor 5 Focal clonic movement 3 Headache or abnormal sensation 4 Dissociative symptom 1 Dystonia after hyperventilation 1 Atonic feature with unresponsiveness 1 Vacant staring with tonic posture 2
Dhiman et al[72]	2013	56	Yes	Seneviratne et al 2010	No	<u>Adult classification</u>

						• Flexion/extension movements 40 (72%) Emotional signs 17 (30.4) Tremors 14 (25%) Whole body flaccidity 12 (21%) Side to side body movements 12 (21%) Out of phase body movements 11 (20%) Vocalization 8 (14%) Hyperventilation 7 (13%) Violent/thrashing/grabbing movements 6 (11%) Pelvic thrusting 5 (9.0) Urinary incontinence 1 (2%) Tongue bite 1 (2%) Coughing 1 (2%) • <u>New classification</u> Hypermotor: 13 (23%) Partial motor 8 (14%) Affective/emotional behaviour phenomena 2 (4%), Dialeptic 8 (14%) Aura 3 (5%), Mixed 22 (39.3%).
Yilmaz et al[73]	2013	54	No	NA	Yes –PNES vs. Non epileptic events described as organic or physiologic	• Prominent motor activity 50% Generalized jerking or flailing 43%% Focal motor activity 2% Complex motor activity 4% Generalized tremor 2% Subtle motor activity 50% Staring 15% Generalized limpness 17% Stereotypic movements 11% Subjective sensation 7% • In the physiologic or organic group, events were less frequent, longer in duration, and commonly manifested as subtle motor activity compared with PNES whereas subtle and prominent motor activities were encountered equally in both groups.

Alessi et al[75]	2013	42	No	NA	Yes children with PNES vs. adults with PNES	• Asynchronous limb movement 38% Closed mouth in the "tonic" phase 2% Eyelid flutter 5% Gradual onset or offset 43% Hyperventilation before the event 19% Ictal crying 5% Ictal eye closure 14% Motor phenomenon lasting >2 min 26% Pelvic thrust movement 17% Precipitate by stimuli 26% Prolonged ictal atonia 17% Pseudosleep 5% Purposeful movements 5% Rapid postictal reorientation 40% Reactivity during "unconsciousness" 21% Side-to-side head shaking 12% Situational onset 40% Undulating motor activity 21% Vocalization during the "tonic-clonic" phase 5% • Adults more frequently had ictal eye closure, convulsions lasting >2 mins, postictal speech change, vocalization during the "tonic-clonic" phase, and pelvic thrust movement. As for the semiological categories, major motor activity was the main feature in adults, and minor motor activity was more prevalent among children (52.9% and 38.1%,).

Szabo et al[76]	2012	27	Yes	Seneviratne et al., 2010	Yes	• Rhythmic tremor or trembling 24% Hyperkinetic hypermotor 0% Complex motor 12% Dialeptic 29% Nonepileptic aura 28% Mixed PNES 4% Minor motor 25% Major motor 13% Dialeptic 29% Nonepileptic aura 28% Mixed PNES 4% • Mean duration of PNES was longer (269 s) compared to seizures of the epileptic group
Kim et al[77]	2012	15	No	NA	No	• Based on clinical manifestations, pediatric patients with psychogenic nonepileptic seizure showed two different patterns. One was decreased responsiveness when the patients became dialeptic with absence or decreased spontaneous movements. Another was excessive motor manifestations, when they brought out motor phenomena such as bizarre, irregular movements of extremities, not typical of epileptic seizures.
Verrotti et al[81]	2009	36	No	NA	Yes	• Unresponsive 18 (50%) Motor 26 (72%) • Overall, PNES with motor events were more significant in pubertal patients compared to prepubertal children ($p = 0.018$), while unresponsive events were more likely in prepubertal children ($p = 0.001$).

Chinta et al[82]	2008	17	No	NA	No	• Upper limb movements were observed in 71% Asymmetrical clonic in both hands 29% Unilateral clonic movement 18% Lower limb movements 47% Asymmetrical clonic 29% Unilateral clonic 12%, Symmetrical clonic 1%. No limb movements 53% Vocalization at the beginning or in the middle of the seizures 24% Pelvic thrusting (24%). Whole body rigidity 35% Whole body flaccidity 12% Unresponsiveness 71%
Patel et al[84]	2007	68	No	NA	No	• Prominent motor activity only: younger children 27% older children 76% • Subtle motor activity: 59% in younger children and 22% in older children. These differences were significant
Kotogal et al[90]	2002	62	No	NA	No	• Unresponsive events 64% Motor events 40% Both types of events 5% • Differences in symptoms between the school-age and adolescent groups were not statistically significant.
Gudmundsson et al[91]	2002	17	Yes	Betts and Boden's classification 1991[117]	No	• Seizure types were varied, and some patients had more than one type but 10 displayed the 'swoon' and nine the 'thrashing' type. Six patients had seizure types which were impossible to classify using the Betts and Boden system.
Irwin et al[93]	2002	35	No	NA	No	• Tonic clonic type 31% Prolonged blank spells 29% Black outs 29% Other 11%
Kramer et al[97]	1995	27	No	NA	Yes	• Staring 15% Mainly motor 85% • Younger children were more likely to display staring as opposed to mainly motor which was more common in adolescent.

Lancman et al[98]	1994	43	No	NA	No	• Nonresponsiveness and generalised violent thrashing and uncoordinated movements 44% Nonresponsiveness and generalised trembling 26% Nonresponisveness 9% Staring 7% Unilateral jerks and responsiveness 7% Generalised stiffness and responsiveness 2% Generalised stiffness and unresponsiveness 2% Incoherence 2%

NA= Not applicable as no control group used or no formal classification system used

Supplement 10 Risk factors/precipitants/stressors for PNES in children		
Author	**Year**	**Main Findings**
Fredwall et al	2021	Total Stressors 79% Abuse 6% Family conflict 14% Family Stressors 1% Grief 5% Other problem 6% Overscheduled 2% Peer problems/bullying 10% Perfectionistic tendencies 1% Physical trauma 8% School performance 24% Substance 3%
Thabit et al	2021	• The precipitating factors for NES included crying in 56 (32.7 %) patients, pain in 15 (9 %) patients, exertion in 15 (9 %) patients, psychosocial stress in 57 (33%) patients, and 28(16 %) patients did not reveal any precipitating factors
Zhang et al	2021	Only persistence* factors 57 (65%) Poor patient-child relationship 29 Foster care 23 Dissatisfaction with daily life 12 Only predisposing* factors 17 (19%) Mood swings 10 Being criticized 8 Fighting with others 6 Death of family members 3 Parents' leave 3 Injury 2 Arguments with others, 2 Illness 1 Both predisposing and persistence factors 6 (7%) Poor patient-child relationship 6 Foster care 5 Mood swings 3

		Death of family members 1 Unknown 8 (9%) *** Persistence factors include environmental influences from family and/or school, to which children have been exposed for a long time. Predisposing factors, on the other side, referred to the direct trigger to the onset of current symptoms and/or hospitalization.**
Hansen et al	2020	• 54% experienced negative life events. • School bullying • Interpersonal conflict • Relative with seizure disorder • Stressful daily life • Stressful divorce of parents • Patient with substance use • Death of close relative • Sexual abuse • Child neglect • Other • Involved in accident • Witness to violence • Physical abuse • Parent sent to prison • Psychological abuse • Comparing the pure and mixed PNES subgroups regarding subtype of negative life event, the only statistically significant difference was observed for child neglect (4.5 vs 14.6%)
Sawchuck et al	2020	• Psychosocial stressors, identified in all but one case during psychological clinical interview, were chronic (>6 months duration) in all but 2 cases (n=30, 94%)
Sawchuck et al -international	2020	• Stressor Children/Adolescents History of head injury 4%/4% History of sexual abuse 7%/13% History of physical abuse 13%/9% History of family dysfunction 39%/38% History of academic failure 23%/14% Family history of seizures 36%/23% Taking antiepileptic drugs 41%/49% Taking psychiatric drugs 14%/32%

Asadi-Pooya et al	2019	• Family history of seizures 31% History of physical abuse 10% History of sexual abuse 6% History of child abuse 2% Dysfunctional family 31% Academic failure 35% Comorbid epilepsy 25%
Myers et al	2019	• Over half of children had family psychiatric histories (e.g., mood and anxiety disorders, substance abuse, and attention deficit hyperactivity disorder), and 10/15 reported experiencing life adversities. Of those, only three patients reported childhood sexual abuse. The most common adversity (6/15) involved loss of one kind or another (e.g., family disruption through death, divorce, illness of a caregiver, or geographic relocation). Another notable finding was that two of the 15 patients with PNES were transgender adolescents who reported bullying by peers or rejection by their family.
Uzun et al	2019	• 41% adolescents had stress factors related to their families and friends, • 29% had stress factors related to school • 10% had stress factors related to other stress factors before the appearance of the PNES symptoms.
Madaan et al	2018	• <u>School related stressors</u> Bullying 10% School change/School problems 8% Exam fear 4% <u>Family stressors</u> Familial discord 14% Sibling rivalry 10% Parental expectation 9% Family illness 8% Low-income 6% Alcohol abuse in father 3% <u>Self related stressors</u> Competitive feeling 6% Low self-esteem 4% Illness 4% Body image issues 3% No stressor/attention seeking 14%

Valente et al	2017	• Stressors were identified in 29 patients (55%) School difficulties (49%) - bullying and learning difficulties Family difficulties (43%) Psychological abuse (40%) Physical abuse (15%) Sexual abuse (13%)
Narita et al	2016	• Authors categorized into patient factors, family factors, and school-related issues.
Kozlowska et al	2017	<u>Antecedent stressors</u> Illness event (accident, infection, or relapse of a chronic illness) 50% Family conflict 43% Maternal mental illness (typically anxiety or depression) 43% Being bullied 38% Loss due to separation 35% Paternal mental illness 27% Loss due to death 22% Exposure to domestic violence 20% Sexual abuse 13% Physical abuse 12% Neglect 12%
Umesh et al	2017	• Academic difficulties 13% Family conflicts 6% Unidentified 81%
McWilliams et al	2016	• Participants described stressful situations as a common trigger for NES.
Park et al	2015	• Physiologic disorder was more frequently observed in patients younger than 6 years, whereas psychogenic nonepileptic seizures and were more common in school-age and adolescent groups.
Rawat et al	2015	• Scholastic difficulties (50%) Interpersonal relationship problems (27%) familial/parental stressors (24%).
Say et al	2015	• Parental conflicts 24% Problems with siblings 37% Problems with peers 48% Problems with teachers 16% School underachievement 58% Physical abuse 31%

		Sexual abuse 8% Stressful/traumatizing events 40% • Relational problems with peers were the most frequent stressor for girls (50%) although this was not significantly different to the rate in boys (44.4%). The most frequent stressor for boys was academic underachievement (83%), the rate being significantly higher than in girls (47%). • Girls and boys were similar in terms of rates of other psychosocial stress factors (family conflict, relational problems, physical/sexual abuse and stressful/traumatizing life events).
Sawchuck et al	2015	• Stressor 93% Peer insecurity/social anxiety (44%) Family conflict (39%) Physical/sexual abuse (15%) Bullying (22%) Loss/grief (4%) Parental separation (15%) Learning difficulty/disability (26%) Medical anxiety (15%) Other (team sports and community strife) (7%) Unknown (4%)
Yadav et al	2015	• Presence of psychosocial stressor: (52%) Undefined stressor 26% Parental conflicts 4% Sexual abuse 4% School and peer problems 11% Recent death in family 2%
Li et al	2014	• Results showed patients with PNES had significantly stronger functional connectivity between insular sub regions and sensorimotor network, lingual gyrus, superior parietal gyrus and putamen, which suggested a hyperlink pattern of insular subregions involved in abnormal emotion regulation, cognitive processes and motor function in PNES.
Plioplys et al	2014	• Significantly more probands reported experiencing lifetime adversities and had a significantly higher mean number of adversities than the siblings. The probands reported significantly more domestic or community violence (23.6% vs. 2.9%) psychological abuse, such as bullying (41.8% vs. 17.2%) and serious personal illness, surgery, or medical procedures (25.5% vs. 2.9%) but not physical (12.7% vs. 5.7%) and sexual (14.6% vs. 2.9%) abuse or loss (parental divorce, death, abandonment) (32.7% vs. 22.9%) than their siblings.

		• A principal components analysis of these variables identified a somatopsychiatric, adversity, epilepsy, and cognitive component. The somatopsychiatric and adversity components differentiated the probands from the siblings and were highly significant predictors of PNES with odds ratios of 15.1 (95% CI [3.4, 67.3], and 9.5 (95% CI [2.0, 45.7]), respectively. The epilepsy and cognitive components did not differentiate between the PNES and sibling groups.
Say et al	2014	Parental conflicts 26% Problems with siblings 32% Problems with peers 47% Problems with teachers 27% School under-achievement 38% Physical abuse 27% Sexual abuse 12% Stressful/traumatizing events 53% • In PNES group, the rates of parental conflicts, difficulties in relationship with siblings and peers were significantly higher than the epilepsy and healthy control groups. There was no difference between epilepsy and healthy control groups when rates of relational problems were compared. Three groups were similar comparing rates of relationship difficulties with teachers. School under-achievement was significantly more common in PNES group than the other two groups. The history of physical abuse, sexual abuse, and stressful/ traumatizing events were significantly more common in PNES group when compared to other groups.
Yi et al	2014	• <u>Familial distress</u> Parental divorce, separation, or discord 12% Stress from family 28% <u>Social distress</u> Academic failure 4% Adjustment failure 8% Assault 8% Bullying 4% Accident before onset or posttraumatic stress disorder 20% None 16%
Akdemir et al	2013	• Twenty-seven (79%) of the adolescents with PNES had a stressful life event or a specific event before the onset of the disorder such as problems in family and/or peer relationships (56%), school-related problems (30%), or other problems (15%). Precipitating factors were conflict between family members (26%), separation from a boyfriend (19%), struggle with a friend (11%), school failure (11%), adjustment problems in school (11%), examination anxiety (7%), traffic accident (4%), sexual abuse (4%), physical health problem in the family (4%,), and

		occupational stress (4%). There was an exposure to epilepsy and/or PNESs through family members or friends in 17 (50%) patients.
Dhiman et al	2013	• The reasons and/or accompaniments of the PNES in 42 children were anxiety disorder (16%); family history of epilepsy (16%); stress related to studies and parental control (11%); non-specific somatization symptoms like abdominal pain, headache (11%) each; depression (11%); psychiatric co-morbidity among close family members (3%). No obvious causes were identified in the rest.
Kim et al	2012	• Older children at higher risk for PNES compared with younger children
Verrotti et al	2009	• A history of severe psychosocial stressors was evident in 25 (69%) out of the 36 patients • School phobia and fear of examinations (31%) • Fear of rejection and need for attention (19%) • Interpersonal conflicts with parents, sibling, or peers (8%) • Physical or sexual abuse (8%) • Overall, only fear of rejection and need for attention reached a statistical difference, being more common in prepubertal patients compared to pubertal subjects (P = 0.049).
Patel et al	2007	• Of the 59 patients, 46 (78%) had at least one stressor present. The most commonly identified stressors in both groups included school difficulties (46%), family discord (42%), and interpersonal conflicts (25%). • 17% of the children reported abuse, physical or sexual, with physical abuse as the predominant type of abuse. Sexual abuse was the least frequent stressor, present in only 5% patients, all females. • History of stressors was either not available in the medical records or not specifically asked f or in 13 patients • Differences noted between the two groups regarding frequency of stressors included significantly more bereavement among the adolescents compared with younger children
Vincentiis et al	2006	• History of physical or sexual abuse 19% Psychological abuse, characterized by direct verbal aggression perpetrated by relatives 14% • Inadequate family setting, characterized by a stressful environment at home 52%
Bhatia & Sapra	2005	• <u>Precipitating Factors</u> School phobia, pressure of examinations 30% Quarrels with peers, siblings 14% Social distress 8% Illness, separation of parents/friends 18% Maternal dominance 12% Lack of leisure activities 10%

		Dissatisfaction in family 16% Fear of rejection and need for attention 26% Parental neglect 12% Sexual abuse 8% Not known 12%
Ahmed et al	2004	• Chvostek's sign (CS) was positive in 25% of patients
Pakalnis & Paolicchi	2003	• 9% had a history of head injury • 36% had a history of sexual/physical abuse
Gudmundssson et al	2001	• Past history revealed four (24%) instances of confirmed or strongly suspected prior traumatizing sexual experience. • The older two participants had taken drug overdoses (12%) • Two participants (12%) had epilepsy in a close relative • Four (24%) had other serious physical illness in the family • Lower-than-expected academic abilities in one area of learning in two patients (12%), and in two or more areas of learning in five patients (29%). • Academic difficulties were not found in the remaining 10 children (59%). • Ten participants (59%) had poor school attendance before admission to the hospital. Bullying was thought to be the main reason for poor school attendance in four (24%) children.
Pakalanis & Paolicchi	2000	• Seven (44%) of the 16 patients had an antecedent history of head injury All of the patients' families considered the head injuries to be the cause of the seizures.
Irwin et al	2000	<u>Causes of psychogenic non-epileptic seizures in the group with epilepsy n=11</u> Attention seeking 27% School avoidance -Bullying 27% - Poor performance 27% Anxiety 9% Family stress 9% <u>Causes of psychogenic non-epileptic seizures in the group without epilepsy n=24</u> History violence/abuse 33% Domestic stress 17% School avoidance 17% Maternal overdependence 13% Unknown 21%

Wyllie et al	1999	• Severe family stress (44%) – Parental divorce, parental discord, or death of a close family member Sexual abuse 32% Physical abuse 6% School failure 9%
Selbst et al	1996	• 20% had a history of child abuse (10% sexual abuse)
Kramer et al	1995	• 27% of the older children (10-17 years) had overt psychosocial stress factors, including family disturbances, peer relationship problems, were sexually abused, and had language or cosmetic deficits.
Lancmann et al	1994	• Conflictive family situation 33% History of sexual abuse 12% Drug abuse 7% Multiple hospitalizations 7% Suicide attempts 5% Other causes 16% No evident major abnormality 19%
Wyllie et al	1990	• <u>At least one precipitating psychosocial stress factor was uncovered 71% of patients</u> Significant family discord 43% Suffered a recent family death 29% Had an alcoholic parent 19% Had a parent with significant medical illness 10% Had major problems with peer relations 10% Had been sexually assaulted by a family 5% No precipitating stress factors 29%

Supplement 11a: Outcomes of PNES in children

Author	Year	Mean Follow-up Time	PNES free	PNES improvement	No improvement	Loss to follow up	Factors associated with outcome
Fredwall et al[29]	2021	12 months	16%	45%	6%	49%	• Patients and families who were linked with counselling at 1 month were more likely to achieve remission at 12 months • Those who had their events documented on video-electroencephalogram (EEG) at diagnosis were not more likely to be accepting of the diagnosis at 12 months be linked with counselling at 12 months or be event-free at 12 months.
Terry et al[37]	2020	3 months	75%		23%	NA	• No difference in remission at 1 month or 3 month follow up • Families needing assistance from social work tended to have worse outcomes
Flewelling et al[36]	2020	6 months	NR	46% reduction in seizures 58% improvement in school attendance 50% reduction in emergency department use	NR	NR	• No factors described
Fobian et al[35]	2020	7 days posttreatment	17/17 (100%) in	NA		NA	• Participation in Therapy arm of RCT

			treatment group 1/12 (8%) in supportive therapy				
Kozlowska et al[51]	2018	Minimum 12 months	73%	20%**		7%	• Risk factors for worse outcomes were chronic PNES, longer PNES duration at the time of presentation, a severe chronic mental illness. • No relationship with IQ, neurological comorbidity, other functional neurological symptoms or with chronic pain disorder.
Sawchuck et al[64]	2015	Minimum 3 months	59%	21%	7%	14%	• No factors described
Rawat et al[61]	2015	10.1 months	77%	15%	3%	6%	• No factors described
Yadav at al[62]	2015	24 months	36%*	NR	NR	NR	• The factors that were associated with "unfavorable outcome" included the presence of comorbid epilepsy and prolonged duration of symptoms before establishment of the diagnosis. • Patient's age, sex frequency of events, the presence of major psychosocial stressors, and comorbid psychiatric conditions had no significant impact on the disease outcome.

Yi et al[69]	2014	31.5 months	80%	12%	8%	0%	• No factors described
Chinta et al[82]	2008	3-6 months	35.3%	47.1%	0%	17.6%	• No factors described
Bhatia & Sapra[87]	2005	3 months	72%	20%	8%	0%	• No factors described
Pakalnis & Paolicchi[89]	2003	12-18 months	36%	23%	0%	36%	• All 5 with concurrent epilepsy had ongoing seizures - all 9 without had resolved but no statistical analysis undertaken.
Kotogal et al[90]	2002	8.35 months	21%	14%**	65%	NA	• No factors described
Gudmundsson et al[91]	2001	6 and 12 months	59/63%	NR	NR	NR	• Seizure frequency predicted outcome at six months. All eight children with 10 or fewer seizures per week on admission were well during the first six months follow-up appointment.
Irwin et al[93]	2000	55 months	66%	22%	9%	6%	• The children with epilepsy had the worst outcome. Only six of these (54%) were PNES free compared with 71% in the group without epilepsy ($p > 0.05$).
Wyllie et al[100]	1999	30 months	44%	18%**		38%	• Not described
Lancman et al[98]	1994	40 months	23%	28%**		49%	• When the two groups were compared younger age at onset, longer delay in diagnosis, and higher seizure frequency predominated in patients with poor clinical prognosis; however, this

							difference did not reach statistical significance. Sex, neurologic history, and seizure type did not influence outcome did not influence the clinical outcome.
Wyllie et al[100]	1991	36 months	81%	0%	0%	19%	• Not described
Wyllie et al[101]	1990	30 months	67%	NR	19%**	14%	• No formal statistical analysis. Good outcome did not appear to be more frequent for males (5/6, 83%) vs females (9/15, 60%), for patients who did (11/13, 85%) vs those who did not (2/3, 66%) have psychiatric treatment, or for patients and families who stated that they did (5/11, 48%) vs those who stated that they did not (6/7, 86%) believe the physicians who told them that the seizures were psychogenic

*36% free throughout the 2 years, 33% not free and 31% inconsistent event freedom rate

**Had ongoing seizures not clear if there was an improvement

*we calculated percentages based on total participants at baseline not based on how many were available at follow-up i.e. intention to treat analysis

Supplement 11b: Factors associated with outcome in PNES in children

Study	Factor																			
	Epilepsy	Mental health	Duration of PNES	PNES semiology/ seizure type	Acceptance of diagnosis	Follow-Up time	Psycho-logical intervention/ counselling	Neurological morbidity	Other FNS/Pain	Gender	Age of onset	Frequency of PNES	Presence of psychosocial stressor	Family history of mental health	Weight	Learning problem /IQ	Abuse	ASM use	Physical illness	Delay in diagnosis
Fredwell et al 2021	**ns**	**ns**		**ns**	**ns**		**sig**													
Terry et al 2020						**ns**														
Fabian et al 2020							**sig**													
Kozlowska et al 2018		**sig**	**sig**					**ns**	**ns**							**ns**				
Yadav et al 2015	**sig**	**ns**	**sig**							**ns**	**ns**	**ns**	**ns**	**ns**						
Gudmundsson et al 2002		**ns**		**ns**								**sig**		**ns**	**ns**	**ns**	**ns**	**ns**	**ns**	
Irwin et al 2000	**ns**							**ns**		**ns**	**ns**	**ns**	**ns**							**ns**

ns = Not significant
sig = significant
ASM = Antiseizure medication
FNS= Functional neurological symptoms

Supplement 12 Psychiatric and cognitive comorbidity in children with PNES

Authors	Year	Sample size with PNES	Age range *(Mean)*	PNES only	Measure of emotions or behavior	Psychiatric comorbidities	Cognition
Hansen et al[30]	2021	384	(5-17 years) Median age 15.7 years	330	ICD register diagnoses	• 39.8% had prevalent psychiatric disorders and 39.1% had incident psychiatric disorders. • Compared to epilepsy and healthy control groups, children, and adolescents with PNES had elevated risks of both prevalent psychiatric disorders. • Prevalent psychiatric disorders -Adjustment disorders (17.5%) -Somatic symptom and related disorders (12.5%) -Neurodevelopmental disorders (11.5%) Emotional disorders (10.7%) • Incident Psychiatric Disorder -Adjustment disorders (12.5%) -Emotional disorders (9.9%) -Somatic symptom disorders (9.1%) -Psychotic disorders (7.4%) -Neurodevelopmental disorders (6.5%)	• Intellectual disability (6.8%)
Fredwell et al[27]	2021	23	8-19 (14)	16	Parent report	• Comorbid mental health conditions 16 (70%) Anxiety 8 (35%) Depression 6 (26%) Post-Traumatic Stress Disorder 3 (13%)	• NR
Sawchuck et al[31]	2020	33	10-17 (14.4)	23	DSM5 and/or chart review	• Anxiety Disorder 67% (22/33) • Depressive Disorder 42% (14/33) Post-traumatic stress disorder 6% (2/33)	• NR
Fredwell et al[29]	2021	125	NR	103	Parent report	• ADHD (7%) Anxiety 28 (22%) Autism 3 (2%) Bipolar 1 (1%) Depression 20 (16%) PTSD 10 (8%) Suicidal ideation/self-harm 6 (5%)	• Intellectual disability 5 (4%) Learning concerns 1 (1%)
Masi et al[34]	2020	22 PNES 22 Epilepsy	12-20	15	KSADS-PL CBCL	• Mood disorders were more common in patients with PNES –ES (n = 8/15, 53%) and with PNES (3/7, 43%), compared with ES (1/12, 8%)), while frequency of attention-deficit hyperactivity disorders	• FSIQ for all patients was above 85

						(ADHD), anxiety disorders, conduct and impulse control disorders, and autism spectrum disorders (ASD) did not differ among groups. • There were no significant differences among groups, neither in the internalizing, externalizing, and total scores nor in the eight scales, including the Somatic Complaints scale on CBCL.	
Fobian et al[35]	2020	29	(15.1)	26	BASC-2	• 28% of participants had clinically significant scores for anxiety on theBASC-2, 10% had clinically significant scores for depression and 21% had clinically significant scores for both anxiety and depression. 48% had no clinically significant elevations for anxiety or depression.	• NR – Severe intellectual disability was an exclusion criteria
Flewelling et al[38]	2020	37	8-18 (14.02)	20	MASC 2 CDI 2	• Parents of children with combined PNES and epilepsy perceived their children as having more depression than parents of children with PNES alone No other statistically significant differences emerged between the two groups. • Higher anxiety scores were associated with lower parental perceptions of HRQoL. Self-report of anxiety was not related to self-report of HRQoL • As levels of depression increased, HRQoL decreased as per parent-report and self-report	• NR
Terry et al[37]	2020	101	NR (14.8)	79	Medical records	• 68% had comorbid mental health condition	• 4 (5%) Intellectual disability
Flewelling et [36]	2020	19	9-17 years	10	CDI MASC 2	• Results demonstrated average to elevated clinical symptom scores across measures (e.g., CBCL, CDI2, MASC 2).	• NR

						• Self-reported anxiety but not depression improved at 6-month follow-up after supports initiated • Parent reported depression but not anxiety had improved at follow-up	
McWilliams et al[44]	2019	59	NR	37	ADOS ADI ASDI	• 50.1% psychiatric illness (any) • 16.9% ASD • 8.5% ADHD • 5.1% Tic disorder	• 6.8% Intellectual disability
Uzun et al[43]	2019	42	12-18 (14.8)	42	K-SADS-PL	• 64% had at least one psychiatric disorder • Anxiety disorder 31% o GAD 14% o Social/specific phobia 10% o OCD 7% • Disruptive behavior disorder (31%) o ADHD (24%) o Conduct 5% o ODD 2% • Mood disorder (26%) o Depressive Disorder 26%	• NR
Myers et al[40]	2019	15 (73%)	14.3 *(11-16)*	15	TSCC	• 100% had a psychiatric history i.e., difficulties Means on TSCC: • 55.53 depression • 60.8 dissociation overt • 51.2 dissociation fantasy • 58.47 dissociation • 54.73 anxiety • 48.87 anger	• Children with ID (IQ<70) were excluded
Luthy et al[48]	2018	399	8-20		DSM5 and ICD-9	• Any psychiatric disorder 41% • Anxiety 27% • Bipolar 10% • Trauma 8% • Depression 8%	• NR (Children with severe intellectual disability excluded)
Madanna et al[45]	2018	60	6-16		DSM-IV-TR	• Any psychiatric disorder 14% o Panic disorder 3% o Depression 3% o Adjustment disorder 9% o ODD 1%	• Verbal IQ in children with PNES, was normal (Mean-100.7)
Kozlowska et al[50,52]	2018	60 (70%)	13.45 *(8-17.67)*	53	DSM-IV RAHC-GAF	• 36.67% anxiety disorder • 11.67% PTSD • 11.67% Panic disorder • 16.67% depression	• **Intelligence quotient estimate (from school reports and school assessments)** Superior 7 (12%)

						• 30% dissociative symptoms	Average 43 (72%) Borderline 8 (13%) Developmental delay 2 (3%)
Valente et al[7]	2017	53 (60.4%)	12.81 *(7-17)*	32	K-SADS-PL DSM-IV ICD-10	• 15.1% neurological condition (motor deficit, borderline IQ) • 45.3% depression • 35.8% anxiety • 15.1% somatoform disorders • 3.8% ADHD • 18.9% conduct disorder	• Seven children (22%) had borderline IQ
Plioplys et al[57,66]	2014 and 2016	55	*8.6-18.4 (*14.8)	39	K-SADS-PL CASI CSI	• Anxiety 83.6% • Depression 43.6% • PTSD 25.5% • ADHD 29%	• Children with IQ < 70 excluded. • IQ 99.8 in PNES group. Lower than sibling IQ (104.3) (p=0.05)
Say et al[60]	2015	62 (71%)	*11-18 (*14.19)	37	KSADS-PL	• 24% ADHD • 15% Major depression • 19.5% Anxiety disorders • 12.9% Disruptive behaviours disorders • 11.2% PTSD	• NR
Yadav et al[62]	2015	90 (64%)	*5-18* (14.03)	71	NR	• 66.7% Comorbid psychiatric illness	• Patients with a known diagnosis of cognitive impairment or intellectual disability were excluded. However, formal IQ testing was not be carried out to determine cognitive status.
Sawchuk & Buchhalter[64]	2015	29 (76%)	NR ('90% adolescent')	22	BASC-2 BYI-2 MACI	• 52% depression • 21% anxiety disorder • 28% attention, speech or learning disorder • 21% self-harm	• NR
Rawat et al[61]	2014	34	<16	26	DSM-V criteria	• 15% depression • 7% ADHD	• 8/34 (24%) children had intellectual disability

Say et al[64]	2014	34	11-18 (14.26)	34	KSADS-PL	• Psychiatric comorbidity 65%
						  • Major depressive disorder 26%
						  • ADHD 29%
						  • ODD 9%
						  • Conduct disorder 6%
						  • Generalized anxiety disorder 9%
						  • Separation anxiety disorder 3%
						  • Specific phobia 3%
						  • Posttraumatic stress disorder 18%
						  • OCD 6%
						  • Alcohol/substance use disorder 5%
						  • Enuresis 3%
						  • Suicide attempt 15%
							• Children with ID were excluded

Young Yi et al[69]	2014	25 (78.7%)	*8-19* (13.82)	17	DSM-IV CDI R-CMAS ATA Conner's Rating Scale, Korean-ADHD rating scale Korean-CBC	• 36% depressive disorders • 12% anxiety • 8% adjustment disorder • 28% ADHD • 4% Bipolar disorder • 4% Conduct disorder • 4% Schizophrenia	• 4 (16%) children had intellectual disability
Akmedir et al[74]	2013	34 (79%)	12-17	34	K-SADS	-Anxiety disorders 35% -Generalized anxiety disorder 18% -Social phobia 9% -Obsessive compulsive disorder 9% -Posttraumatic stress disorder 3% -Disruptive behavior disorders 35% -Attention deficit hyperactivity disorder 29% -Oppositional defiant disorder/conduct disorder 9% -Major depressive disorder 27% -Nicotine use disorder 15%	• Children with ID excluded
Salpekar et al[80]	2010	24	(14)	24	CBCL BSI ASI	• Children with PNES had significantly higher scores on the Childhood Somatization and Functional Disability Inventories, and their parents reported more somatic problems on the Child Behavior Checklist (CBCL) compared with children with epilepsy. • Depression, anxiety, and alexithymia instruments did not differentiate the groups.	• NR

Verrotti et al[81]	2009	36 (72.2%)	Group I (pre-pubertal): 9.3 Group II (pubertal): 14.3 *(6-17)*	0	DSM-IV ICD-10	• Overall: 41.7% psychiatric disorder • Depression: 7.1% group I 27.2% group II • Panic 14.2% group I 9.1% group II • GAD 7.1% group I 9.1% group II	• NR
Patel et al[84]	2007	59 (63%)	*5-20* (13.4)	33	NR	• 25% depression • 7% anxiety • 7% behavioural problems	• 1/59 (2%) of children had ID (Mild ID)
Vincentiis et al[85]	2006	21 (42.9%)	13.1 *(4-18)*	0	DSM-IV ICD-10 KIDDIE-SADS	• 61.9% mood disorders (dep & anxiety) • 14.3% pure dissociative disorder • 9.5% conduct disorder • 9.5% ODD	• Children with severe mental retardation were excluded
Bhatia & Sapra[87]	2005	50 (56%)	*6-12* (8.2 – boys, 9.4 – girls)	50	NR	Separation anxiety 32% Mood disorders 24% Panic disorder 12%	• Patients with ID excluded
Pakalnis &Paolicchhi[92]	2003	22	7-17	17	Interview no criteria	-Depression 41% -GAD 41% -ADHD 5% -ODD 5% -Bipolar 5% -Schizophrenia 5%	• 2 (9%) children had mild ID
Wyllie et al[94]	1999	34 (74%)	14 *(9-18)*	30	DSM-IV	• 32% mood disorders (depression, bipolar, dysthymic disorder) • 24% separation anxiety and school refusal • 12% personality disorders	• 2 (6%) children had mild ID
Tamer et al[95]	1997	22	5-18	13	NR	• 64% had associated psychological problems but details not given	• NR

ADI – Autism Diagnostic Interview, ADOS –Autism Diagnostic Observation Schedule, ASDI – Asperger Syndrome Diagnostic Interview, ATA – Advanced Test of Attention, BACSC-2 Behavior Assessment System for Children Version 2, BYI-2 – Beck Youth Inventory – Version 2, CASI – Childhood Anxiety Sensitivity Index, CCQ – Children's Coping Questionnaire, CDI – Children's Depression Inventory, CSI – Children's Somatization Inventory, DSM-IV – Diagnostic and

Statistical Manual of Mental Disorders, ES= Epileptic Seizures, HRQoL = Health Related Quality of Life, ICD-10 - Classification of Mental and Behavioral Disorders: Diagnostic Criteria for Research, ID= Intellectual Disability, K-CBC – Korean- Child Behaviour Checklist, KIDDIE-SADS – The Schedule for Affective disorders and Schizophrenia for School-Age Children – Epidemiological Version, K-SADS-PL – Schedule for Affective Disorders and Schizophrenia for School-Age Children: Epidemiological version, MACI – Millon Adolescent Clinical Inventory, n – Number of patients assessed, NR – Not reported, ODD – Oppositional Defiant Disorder, R-CMAS – Revised Children's Manifest Anxiety Scale Questionnaire. K-WISC-III - Korean-Wechsler Intelligence Scale for Children, third edition, MMPI – Minnesota Multiphasic Personality Inventory, PBI – Parental Bonding Instrument, RAHC-GAD – The Royal Alexandra Hospital for Children Global Assessment of Functioning, TSCC – Trauma Symptom Checklist for Children.