coram | better chances for children since 1739

Hannah Lawrence and Olivia Michelmore

Understanding sleep problems experienced by unaccompanied asylum-seeking children and children in care

April 2019

Acknowledgements

Coram is the UK children's charity that has been supporting children since 1739. Coram's mission is to develop, deliver and promote best practice in the care of vulnerable children, young people and their families.

We are grateful to Dr Ana Draper for her guidance with this review of research literature.

Authors

Hannah Lawrence, Senior Research and Evaluation Officer

Tel: 0207 520 0365

Email: hannah.lawrence@coram.org.uk

Olivia Michelmore, Senior Research and Evaluation Officer

Tel: 020 7520 0377

Email: olivia.michelmore@coram.org.uk

Published by Coram

41 Brunswick Square

London, WC1N 1AZ

www.coram.org.uk

Registered charity no: 312278

Contents

Executive summary 4
Unaccompanied asylum-seeking children and sleep problems 4
Children in care and sleep problems 5
Our recommendations for research and practice based on the findings from the studies 7
Introduction 8
Objectives and scope of the review 8
Search strategy 9
Selecting studies 10
Extracting and synthesising data 10
Findings: unaccompanied asylum-seeking children and sleep problems 11
Summary: unaccompanied asylum-seeking children and sleep problems 15
Findings: children in care and sleep problems 16
Summary: children in care and sleep problems 23
Conclusion 25
Limitations of this review 25
References 26
General literature 26
Unaccompanied asylum-seeking children literature 26
Children in care literature 27
Appendix 29
Appendix 1: search terms for unaccompanied asylum-seeking children 29
Appendix 2: search terms for children in care 29
Appendix 3: electronic databases used for searches 29
Appendix 4: quality appraisal criteria 30

Tables and figures

Table 1: literature included relating to UASC and sleep problems 12
Table 2: literature included relating to fostered children and sleep problems 17
Table 3: literature included related to adopted children and sleep problems 20

Figure 1: inclusion process for papers relating to UASC and sleep problems 11
Figure 2: inclusion process of papers relating to CiC and sleep problems 16

Executive summary

This rapid review conducted by Coram's Impact and Evaluation team aimed to find out what the research literature tells us about sleep problems experienced by:

- unaccompanied asylum-seeking children (UASC)
- children in care or care experienced (CiC)

We wanted to understand the nature of the problems experienced by these young people and identify any promising solutions in helping them to sleep. The review was commissioned to help with the development of the Coram Sleep Project.

A mixed search strategy was adopted which included manual searches of bibliographies, systematic searches in six electronic databases and consultations with relevant experts. Once literature was found and retrieved it was appraised by two researchers using a quality appraisal tool. Data from included literature was then extracted and synthesised for the final report.

For both UASC and CiC there were few studies that focused on sleep problems specifically. Sleep issues were often a small part of studies about mental health more generally. This limited the amount of information about the nature and scale of sleep problems experienced by these groups, and successful interventions used to address sleep issues available to the review. The main findings from the literature about both groups of children are below.

Unaccompanied asylum-seeking children and sleep problems

Four papers were included in the review that were relevant to UASC and sleep problems. Although only four studies were found, they did provide some helpful learning for the development of programmes that help UASC to sleep better. The studies described a prevalence of sleep disturbance experienced by UASC.

Only one of the papers included in the review used research methods that collected data directly from UASC, who were aged 13 to 18 years old (Bronstein and Montgomery, 2013). One study was a review of literature (Montgomery, 2011); one study collected feedback from practitioners working with UASC (Carr et al., 2017) and the other study interviewed parents of refugee children[1] (Montgomery and Foldspang, 2001).

[1] Although these children were not unaccompanied, this study was included because of 1. its relevant findings and 2. the limited research studies available.

In two of the four papers it was emphasised that the symptoms that arise from sleep problems can be confused with signs of post-traumatic stress disorder (PTSD) in young refugees (Carr et al., 2017, Montgomery, E., 2011). Montgomery's (E.) 2011 review of evidence relating to mental health in young refugees reported that the general behaviours of young refugees were not PTSD specific and a majority (77%) of young people suffered from anxiety, sleep disturbance and/or depressed mood on arrival in a new country.

Montgomery's (E.) 2001 study of refugee children (with at least one parent) from the Middle East highlighted the importance of family environment and a feeling of security in facilitating good sleep following traumatic experiences related to war and violence.

Bronstein and Montgomery's (2013) study found that UASC took 20 minutes longer than normal to fall asleep, but the bed times and rise times of UASC were consistent with adolescents from other Western or high-income countries[2].

The findings have some relevant practice implications for projects aimed to help UASC sleep better. First, UASC would benefit from sleeping in an environment that provides stability and security to promote good sleep. Second, attention should be paid to the process of UASC falling asleep as this was where Bronstein and Montgomery's (2013) study found that there was a difference from other general populations of young people (see footnote 2).

Children in care and sleep problems

Eight papers were found that studied the sleep problems of care experienced children. Four of these related to adopted children and the other four to fostered children. The age range in all but one study was two to 12 years old. One study (Fusco and Kulkarni, 2018) focused on young adults (mean age was 21 years old) who had left foster care. Similar to UASC, it was noted in a few studies that this is an area that has received limited research attention. The research that does exist has focused on young children.

Fostered children and sleep problems

In the studies about fostered children, it was found that there was a link between insecure environment and sleep disruption. Foster children with poorer sleep were more likely to have displayed difficult behaviours (Dubois-Comtois, 2016) and foster children took almost 20 minutes more to fall asleep compared with children not in care (Tininenko et al., 2010).

[2] This study (Bronstein and Montgomery, 2013) compared UASC results from the School Sleep Habits Survey (SHS) with other studies using the SHS with young people in 'Western or high-income countries'. The other studies were conducted in USA, Italy and Korea.

The studies included in this review about foster children and sleep problems made the following recommendations:

- foster children's sleep problems should be routinely assessed and foster carers should help them to establish good sleep hygiene (Hambrick, 2017)
- young people who are resistant to talking therapies may be more receptive to programmes that specifically target their sleep as it is a low stigma issue (Fusco and Kulkami, 2018)
- as foster children have more difficulty initiating sleep it may be especially important to address these problems through environmental intervention such as ensuring bedrooms provide a calm and secure space (Tininenko, 2010)
- cognitive behavioural therapy for chronic insomnia (CBT-I) has been shown to be effective in improving sleep (Fusco and Kulkami, 2018)
- young adults who have left care could benefit from more information about how past trauma can continue to disrupt sleep (Fusco and Kulkami, 2018)

Adopted children and sleep problems

The sleep problems of adopted children is also not a well-researched area. One review (Radcliff et al., 2017) found seven studies that examined sleep in adopted children and these focused on internationally adopted Asian female infants. Furthermore, only two studies have used validated sleep questionnaires.

The studies included in this review found that adopted children who have experienced maltreatment experienced a significantly greater amount of sleep disturbance than their non-adopted counterparts (Cuddihy et al., 2013). Schenkels' 2018 study found that adopted children showed a significantly higher prevalence of any disorder[3] initiating and maintaining sleep.

The most common sleep disorders experienced by adopted children were bedtime resistance, parasomnias[4], sleep onset delay and sleep anxiety (Rajaprakash, 2017). Family structure, adoption history, foster placement duration and number, type of adoption and age at adoption did not appear to be factors that explained variations in sleep (Rajaprakash, 2017).

More research is needed to describe the sleep problems of this cohort more thoroughly. It would be useful to explore whether there are factors that moderate or mediate the

[3] Defined as a sleep latency of more than 30 minutes on average or more than one hour on ≥1 night during the week, restless sleep, and frequent nocturnal awakenings.
[4] Parasomnias are disruptive sleep disorders that can occur during arousals from REM sleep or partial arousals from non-REM sleep. Parasomnias include nightmares, night terrors and sleepwalking.

relationship between the adoption process and sleep such as the adoption process experience, trauma history and types of trauma experiences.

Our recommendations for research and practice based on the findings from the studies

This review has revealed the dearth of literature available about UASC and CiC experiencing sleep problems. In total, 12 studies were included in this review that were relevant to the two groups and sleep problems.

The studies included suggest that some sleep problems are being experienced by these two groups, so further research into these problems would be helpful to understand more about the scale and nature of them. Furthermore, preliminary evaluations and research into successful solutions to address sleep problems would be useful in shaping future projects and ensuring they use effective approaches and interventions.

The studies included have provided some initial implications and learning for practice which are common across the two groups of children. Although these would benefit from further research, the initial points of learning are:

- discussing sleep problems with young people can be less stigmatising than discussing mental health issues. This may encourage a young person to access the support needed and help to identify if any further mental health intervention is required.
- sleep problems experienced by young people should be regularly assessed, particularly for those in care who may have disrupted sleep because of moving between placements.
- CBT-I may be effective in helping UASC and CiC to overcome sleep problems.
- there is some evidence that sleep problems of UASC and symptoms of PTSD can be confused. This is an issue for practitioners diagnosing UASC with PTSD to be mindful of.
- Young people need to feel safe and sure to sleep well. This was a common theme for both UASC and CiC.

Introduction

This paper presents the findings from a rapid review of evidence about sleep problems for certain groups of vulnerable young people. The review was commissioned to inform the development of the Coram Sleep Project[5] training for practitioners delivered by Dr Ana Draper in two new local authorities. The review began in November 2018 and was conducted by Coram's Impact and Evaluation team.

Objectives and scope of the review

Our objectives were to find out what the research literature tells us about sleep problems experienced by 1. unaccompanied asylum-seeking children (UASC) and 2. children in care or care experienced (CiC). We wanted to understand:

1. the **scale and nature** of sleep problems experienced by these two cohorts
2. the **types of sleep problems** that commonly affect these young people
3. the **promising solutions** to address sleep problems for these cohorts.

To do this we appraised relevant literature to draw out information about what is confidently known and what is more tentatively understood about sleep problems for these cohorts. We have also aimed to draw out the implications for practice to support the sleep programme development and for children's social care teams more widely.

The review included qualitative, quantitative and mixed methods studies. We focused on primary data but included literature reviews if they brought something new to our findings.

The original scope for the review was to consider peer reviewed research and grey literature[6] published from 2008 and onwards. As searches using this scope did not return many relevant results, the search was broadened to include papers prior to 2008. The geographical scope of the review was international.

We focused our search on studies about adolescents (typically 11 to 17 years old). Our search terms reflected this (see appendix 1 and 2).

The term 'sleep problems' covers a range of issues. We focused our review on problems with falling asleep, daytime sleepiness, night time awakening, regularity and duration of

[5] The Coram Sleep Project was first developed and delivered in Kent County Council for UASC. The project consists of a sleep hygiene presentation, a sleep pack and a circadian rhythm body clock calculator. More about the project can be found here: www.uaschealth.org/resources/mental-health/sleep-eat-hope.
[6] Common grey literature publications include government documents, white papers and evaluations.

sleep. Studies focused on generic analyses of sleep patterns in adolescents and the effects of the use of electronic devices were excluded.

The methodological criteria for the inclusion of studies were flexible. There was no minimum sample size threshold for the inclusion of a qualitative study. For quantitative studies, we planned to exclude a study if the sample was too small (although we did not need to apply this rule).

Search strategy

The timetable (12 weeks) and resource for this project demanded the use of rapid review methodology. Rapid reviews are used to summarise the available research within the constraints of a short timescale. They differ from systematic reviews due to these time constraints and therefore have limitations on the extent and depth of the literature search. They are as comprehensive as possible, yet compromises are made in terms of identifying all available literature. They are particularly useful to policy makers who need to make decisions quickly (Tricco et al., 2017). Rapid reviews should be viewed as provisional appraisals rather than a definitive account of what works (Rutter et al., 2010). There is no one standard method for conducting a rapid review. Our team followed the stages set out in Tricco et al.'s 2017 practical guide published by the World Health Organization (Pluddemann, 2018).

We applied a mixed search strategy including both manual and automated methods. Automated methods involved entering combinations of relevant search terms into six electronic databases: Cochrane Library, Google Scholar, NSPCC library, PsycInfo, PubMed and Social Care Online (descriptions of these databases are in appendix 3).

Our manual search strategy included consulting with our network of contacts through the Coram group of charities, as well as any relevant academics, experts, organisations and researchers.

Finally, to ensure that we accessed the most relevant sources, we conducted a thorough review of bibliographies to identify any additional literature that may not have been caught by our searches.

Given the rapid timeframe we agreed that the review of material would stop when either 20 items had been reviewed in total or saturation had been achieved and two or more researchers agreed that continuation was unlikely to provide any new insights.

We ran a set of searches with combinations of pre-determined search terms to identify relevant literature. The search terms were tested through a pilot search. Searches included

combinations of a population-related term (for example, child) and a relevant indicator (for example, refugee) combined with the term ‘sleep’. The search terms were adjusted according to the requirements of specific databases.

Researchers conducted an initial, manual scan of abstracts to discard all immediately irrelevant hits. Items apparently meeting basic relevance criteria were then retrieved as full texts.

The studies retrieved, screened and excluded were recorded.

Selecting studies

Qualitative, quantitative, mixed methods studies and systematic or rapid reviews were assessed using our quality appraisal tool. Details of this are in appendix 4.

Extracting and synthesising data

Following the quality appraisal process the team extracted data from selected studies. We synthesised the evidence obtained from the included studies and drew out analysis and conclusions from these.

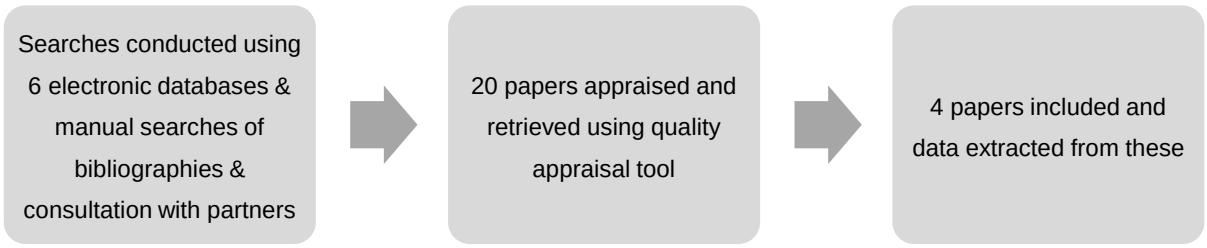
Findings: unaccompanied asylum-seeking children and sleep problems

Four articles were selected for inclusion in this part of the study.

Three of these papers were found via manual searches in bibliographies and one was found via an automated search. Searches using combinations of the search terms were conducted of six electronic databases and from this only one paper was relevant. The researchers agreed not to search any more databases as searches were returning the same results consistently.

Twenty papers were reviewed using the quality appraisal tool. Papers were excluded at this stage predominantly because their focus was on PTSD or depression and anxiety. There were sometimes cursory references to sleep in these studies in relation to PTSD or depression and anxiety but it was not a focus of the papers.

Figure 1: inclusion process for papers relating to UASC and sleep problems



The table below summarises the key findings of the four papers that were included following the quality appraisal process. In addition, the relevant learning for the other projects has been summarised in column 7. Full citations are detailed at the end of this report.

Table 1: literature included relating to UASC and sleep problems

Title & first author	Geographical scope	Research question	Study design	Sample size (incl. participant age)	Key findings	Relevant learning
Evaluation of the Sleep Project for UASC in Kent Carr, H.	Regional (UK)	Explores the experiences of the Kent Sleep Project intervention from the practitioner's point of view. *(Note: this project forms the basis of the Coram Sleep Project)*	Qualitative interviews with practitioners	18 practitioners	The Sleep Project was a successful intervention perceived positively by all practitioners interviewed - they felt that it had resulted in significant change, improving sleep for young people (YP) and their general health and wellbeing. Practitioners encouraged others to see disrupted sleep patterns and lack of sleep as giving rise to a set of symptoms that can initially be confused with PTSD. Most YP slept during the day and were unable to sleep at night. Due to the nature of the journeys across Europe, YP showed circadian body clock rhythms set into nocturnal patterns. On arrival to the UK, YP started to experience an intense form of jet lag of which the symptoms were: difficulty concentrating, indigestion, and memory problems.	Although based on limited evidence, the Sleep Project was deemed successful for UASC in Kent. The symptoms from sleep problems can be confused with PTSD. The paper does not include the views of YP about the Sleep Project.
Sleeping Patterns of Afghan Unaccompan	Regional (UK)	First study investigating the sleeping patterns of UASC.	**Quantitative**: used: School Sleep Habits Survey (SHS)	222 UASC (13 – 18 years old)	Afghan UASC sleep onset latency was 20 minutes greater than what is considered a normative length of time to fall sleep.	UASC took 20 minutes longer than normal to fall asleep.

ied Asylum-Seeking Adolescents: A Large Observational Study Bronstein, I.		Aimed to understand the general patterns of Afghan UASC sleep and to investigate the relationship between these patterns and PTSD within this population.	and Reactions of Adolescents to Traumatic Stress questionnaire (RATS)		Strong association between increased sleep problems and scoring above the cut-off for PTSD on the RATS – UASC who screened above clinical cut-off for PTSD reported significantly greater sleep onset latency, increased nightmares and less total sleeping time compared with non-PTSD group. Bed times and rise times of Afghan UASC appeared consistent with those of adolescents from other Western or high-income countries suggesting some pattern of sleep assimilation among the YP. While taking account of traditional sleep practices, Afghan UASC sleep patterns adapt to their contextual environment, which includes social and cultural norms of the country of asylum.	Bed times and rise times of UASC were consistent with adolescent from other Western or high-income countries.
Trauma, exile and mental health in young refugees Montgomery, E.	Multi-country (Middle East)	Review of evidence of trauma and exile related mental health in young refugees in middle east.	**Literature review**	Not applicable	The reactions of children were not necessarily PTSD specific - 77% suffered from anxiety, sleep disturbance and/or depressed mood at arrival. Sleep disturbance was primarily predicted by a family history of violence.	High prevalence of sleep disturbance reported in studies of young refugees but this is studied as an integrated component of PTSD diagnosis. Sleep disturbance' is often not studied on its own but only as part of the PTSD diagnosis in studies involving refugee children.
Traumatic experience and sleep	National (Denmark)	To identify specific traumatic risk indicators and modifying factors for sleep disturbance	**Mixed method:** structured interviews with parents	311 refugee children (with parents)	Sleep disturbance was determined equally by background factors, violent experience and present life context.	Family environment is of primary importance for childhood sleep disturbance following traumatic

disturbance in refugee children from the Middle East Montgomery, E.	among recently arrived refugee children from the Middle East	(3 – 15 years old)	The most important predictors of sleep disturbance were: - grandparents violent death before child's birth - mother has experienced torture - both parents in Denmark (modifying factor).	experiences connected with war and other organised violence. Falling / staying asleep is conditional on the child 'letting go' of control - a certain feeling of security usually provided by parents.

Summary: unaccompanied asylum-seeking children and sleep problems

Although the search for literature relating to UASC and sleep problems returned only four relevant papers, it is helpful to understand that limited research has been conducted in this area. The studies that were found provided some helpful learning for the development of programmes that seek to help UASC to sleep better.

Carr et al. (2017) found that the Sleep Project in Kent was successful from a practitioner's point of view. The practitioners reported that it had resulted in significant change, improving sleep for young people and their general health and wellbeing. However, this was based on a small sample of practitioners and did not incorporate the views of the young people. Therefore the findings cannot be generalised.

The Carr et al. paper emphasised that the symptoms from sleep problems can be confused with signs of PTSD. This finding was corroborated in Montgomery's (E.) 2011 review of evidence of trauma mental health in young refugees from the Middle East. This review found that the reactions of children were not necessarily PTSD specific and that 77% of UASC suffered from anxiety, sleep disturbance and/or depressed mood on arrival. There was a high prevalence of sleep disturbance reported in the studies included in the review and Montgomery (E.) points out that sleep disturbance is often not studied on its own but only as part of the PTSD diagnosis involving young refugees.

Montgomery (E.) and Foldspang's 2001 study highlighted the importance of family environment and a feeling of security in facilitating good sleep following traumatic experiences related to war and violence. Bronstein and Montgomery (P.) (2013) found that UASC took 20 minutes longer than 'normal' to fall asleep but the bed times and rise times of UASC were consistent with adolescents from Western or high-income countries.

The findings from these two studies have relevant practice implications for projects that aim to help UASC sleep better. First, UASC would benefit from an environment that provides stability and security to promote good sleep. Second, attention should be paid to the process of UASC falling asleep as this is where one study found there to be a difference from other populations of young people.

Findings: children in care and sleep problems

Eight papers relating to children in care and sleep problems were selected for inclusion in this part of the study. Four of these studies related to children in foster care and sleep, and the other four focused on adopted children and sleep.

All papers were found via manual searches in bibliographies. Searches using a combination of the search terms were conducted of six electronic databases and none returned any new papers that were relevant. The researchers stopped searching additional databases as searches were returning the same results.

Twenty papers were reviewed using the quality appraisal tool. Papers were excluded at this stage predominantly because their focus was on very young (pre-school) children. Many papers on sleep and children in care included or focused on pre-adolescent children (aged 12 years old and below typically). However, it was agreed to include these papers given the lack of relevant papers on sleep and older children in care.

The table below summarises the seven papers that were included after the quality appraisal process and the key findings. As with the UASC literature, full citations are detailed at the end of this report.

Figure 2: inclusion process of papers relating to CiC and sleep problems

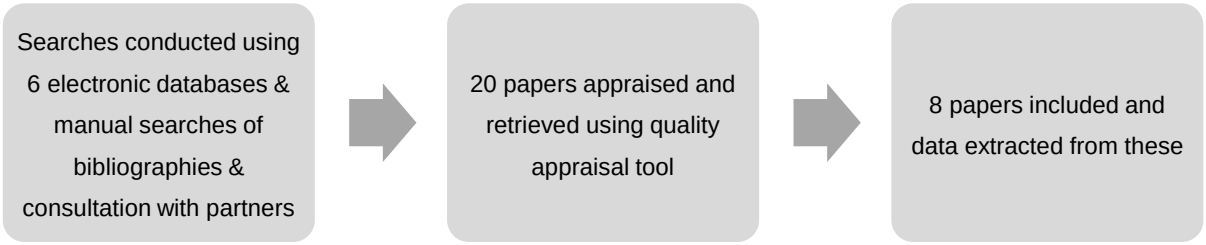


Table 2: literature included relating to fostered children and sleep problems

Title & first author	Geographical scope	Research question	Study design	Sample size (incl. participant age)	Key findings	Relevant learning
Poor quality of sleep in foster children relates to maltreatment and placement conditions Dubois-Comtois, K.	Regional (Canada)	Investigates sleep in sample of maltreated children living in foster care and examines its associations with placement conditions and history of maltreatment.	**Quantitative**: used foster carer questionnaires - Your Child Sleep and Parenting Stress Index (PSI) – and administrative data from Child Protection Services	25 children (3 – 7 years old)	Results supported the association between an insecure and inconsistent environment and sleep disruption. Children with multiple placements experienced more instability and relationship disruptions (factors that have been associated with anxiety and sleep disruptions). Higher scores on the non-restorative sleep index were significantly related to foster mothers' distress and children's difficult behaviours. Because of its impact on behavioural regulation and control, inadequate amounts of sleep may affect children's behavioural and social adjustment during the day and vice versa. Children's sleep disruption is related to their adaptation and associated with their parents' functioning. Foster children showing higher scores on the non-restorative sleep and poor sleep indexes were more likely to have experienced sexual abuse.	Highlights the link between insecure environment and sleep disruption. Child sleep disruption is associated with parent functioning. Children with poorer sleep were more likely to have displayed difficult behaviours.

					Foster children showing greater scores on the poor sleep index were more likely to have dysfunctional interactions and to show difficult behaviours (consistent with findings from children living with their biological parents).	
"Bedtime is when bad stuff happens": Sleep problems in foster care alumni Fusco, R. A	Not stated but a US study	To learn more about sleep in young adults who have spent time in foster care Examined sleep before entering care, during care, and after leaving care and establishing their independence as adults	**Qualitative**: used in-depth, semi-structured interviews 24 foster care alumni	24 foster care alumni (Mean age= 21 years old)	Pre-foster care: YP reported that they did not feel safe in asleep in bed. During foster care: 10 of the YP connected their experience of entering care with developing sleep problems. Some had fears about falling asleep. Transition out of care: YP had challenges falling asleep (some felt alone or had intrusive thoughts or feared nightmares at this time). 15 YP used drugs/alcohol to help them sleep. Problems with sleep appeared to have greatly impacted the YP's lives and had negative effects upon their relationships, employment, school, and even their foster care placement experiences. YP did not seem aware of how their current issues with sleep may remain rooted in their early trauma. YP expressed hopelessness about improving their sleep, some believed they were born poor sleepers.	Few studies of sleep in foster care populations have been conducted and the research that does exist has focused on young children. Foster care alumni could benefit from more information about how past trauma can continue to disrupt sleep. YP were resistant to therapy, but they may be more receptive to programs that specifically target their sleep. Cognitive behavioural therapy for chronic insomnia (CBT-I) has been shown to be effective in reducing the amount of time to fall asleep, increasing the total sleep time, and decreasing time spent awake during the night. CBTI has also been

						shown to reduce nightmares and other PTSD symptoms after 10 sessions (in a separate study where it was used as a treatment for combat veterans).
Do sleep problems mediate the link between adverse childhood experiences (ACE) and delinquency in preadolescent children in foster care? Hambrick, E.P.	Regional (US)	To determine if sleep problems mediate the association between ACEs and delinquency in a sample of preadolescent children who recently entered the foster care system	**Quantitative:** using demographic information about children, ACE measure, Child Behaviour Checklist (parent report) and Adolescent Risk Behaviours Scale	516 children in care (9 - 11 years old)	After controlling for various factors, including age, placement type and length of time in placement, sleep partially mediated the association between ACE and delinquency. Improving sleep problems for preadolescents in foster care may be one avenue for preventing or reducing delinquency, particularly if addressing sleep problems is a component of broad intervention efforts. It may be especially important to intervene during preadolescence with high-risk children, including children in foster care, because delinquency often emerges during adolescence.	Sleep problems should be assessed in this population and foster carers should help establish good sleep hygiene in children as one strategy to help reduce delinquency.
Sleep disruption in young foster children Tininenko, J.	Regional (US)	Examines the sleep quality in foster children and investigates the sleep differences between children placed in regular foster care (RFC) or receiving a therapeutic	**Quantitative**: used actigraphs[7] and parent reported 15-item sleep diary	79 children (3 - 7 years old)	Differences between foster and community children were more pronounced than differences between LIC and UMC children TFC children slept significantly longer than RFC children and LIC children. TFC children obtained more 'true sleep' than LIC children.	As foster children had more difficulty initiating sleep it may be especially important to address these problems sleeping though environmental intervention.

[7] Actigraphs monitor human rest/activity cycles. They are usually devices that are worn on the wrist.

	intervention in foster care (TFC). (Note: sleep is not specifically targeted in this intervention). The study also considered the effect of income on sleep, comparing low income nonmaltreated 'community' children (LIC) living with biological parents with upper middle income nonmaltreated community children (UMC) living with their biological parents.			Foster children had more difficulty initiating sleep at bedtime relative to 'community' children. There were differences in sleep schedule and duration, but no group differences in sleep quality.	Multidimensional Treatment Foster Care was used in this intervention. It is aimed at pre-schoolers so not relevant for other sleep projects working with adolescents. In this study income had little effect on sleep (an unexpected outcome). There were no differences in sleep quality between the groups.

Table 3: literature included related to adopted children and sleep problems

Title & first author	Geographical scope	Research question	Study design	Sample size (incl. participant age)	Key findings	Relevant learning
Sleep disturbance in adopted children with a history of maltreatment Cuddihy, C.	National (Scotland)	Investigates whether children with a history of maltreatment and current behaviour problems demonstrate greater sleep disruption than controls, and whether sleep disturbances are	**Cross sectional with comparison group**: used Children's Sleep Habits Questionnaire (CSHQ) and Strengths and Difficulties	66 children (5 - 12 years old)	Maltreated children experienced significantly and clinically greater sleep disturbance than controls - these problems are detectable during childhood. Sleep problems associated with a range of behavioural disturbances.	The effect of maltreatment on sleep disturbance and its links with behavioural issues.

		associated with these behavioural problems.	Questionnaire (SDQ)			
Adopted youth and sleep difficulties Radcliff, Z.	International	Reviews the existing literature to explore the development, maintenance, and impact of sleep difficulties in adopted youth. Implications for future research and clinical interventions are outlined.	**Review of literature** which studies adopted children with any sleep abnormality	Not applicable	All 7 studies show that sleep difficulties are common in adopted youth. Maltreatment and institutionalization prior to adoption predicted poorer sleep post-adoption. The current body of literature has several notable limitations: - Only 2 studies have used a short-term longitudinal design - Only 2 studies have used validated sleep questionnaires - Most studies examine internationally adopted Asian female infants - Only 1 study about school aged children.	Adopted children and sleep problems is not a well-studied area and there is a focus on international adoptions. 7 studies have been found that examine sleep in adopted youth.
Sleep Disorders in a Sample of Adopted Children: A Pilot Study Rajaprakash, M.	Regional (Canada)	Investigates: 1. types of sleep disorders experienced by adopted children 2. relationship between sleep disorders and psychosocial factors including adoption history, parental education, family structure, and behavioural factors 3. evaluate sleep in adopted children and	**Quantitative:** used CSHQ and Behaviour Assessment System for Children (BASC-2) Both parent reported.	Parents of 48 adopted children (2 - 10 years old)	The most common disorders found were: - bedtime resistance - parasomnias - sleep onset delay - sleep anxiety. No significant relationship between sleep disorders and family structure, adoption history, number and duration of foster placements, type of adoption (international vs national), age at adoption. Some trends were noticed: 1. internationally adopted children had higher levels of bedtime	Useful to understand the most common disorders experienced for adopted children. Family structure, adoption history, foster placement duration and number, type of adoption, age at adoption did not affect sleep.

		possible relationships with (a) adoption history (internationally vs. nationally adopted, number and duration of foster placements, age at time of adoption), (b) family structure (one- vs. two-parent families, parent education, siblings) (c) behavioural issues.			resistance compared to those who were nationally adopted 2. children with single parents found to have higher levels of night wakings compared to those with 2 parents 3. child's behavioural profile showed more profound effects on sleep disorders than family structure or adoption history 4. adopted children reported to be poor sleepers showed higher degrees of attention problems than those reported to be good sleepers.	
Sleep problems in internationally adopted children: a pilot study Schenkels, E.	National (Belgium)	Investigate sleep disorders in internationally adopted children. Rationale: only 2 other studies of adopted children have used validated sleep questionnaires.	**Quantitative**: used a range of measures	27 internationally adopted 93 non-adopted children (Average age: 2.9 years old (adopted) 3.3 years old (non-adopted))	Adopted children showed a significantly higher prevalence of any disorder of initiating and/or maintaining sleep (defined as a sleep latency of more than 30 minutes on average or more than one hour on ≥1 night during the week, restless sleep, and frequent nocturnal awakenings). 44% of the adopted children were categorized as having possible restless legs syndrome compared to 12% of children in the control group. No significant differences were found for parasomnia, nocturnal enuresis or snoring.	Adopted children are more likely to have sleep disorders than their non-adopted counterparts There are few studies that focus on adopted children and sleep specifically – further research is needed to describe the problem more thoroughly.

Summary: children in care and sleep problems

Fusco and Kulkarni's 2018 study of children who have been in foster care points out that few studies of sleep in foster care populations have been conducted and the research that does exist has focused on young children.

The limited studies that do focus on the subject of sleep and children in foster care found that there was a link between insecure environment and sleep disruption; foster children with poorer sleep were more likely to have displayed difficult behaviours (Dubois-Comtois, 2016). Tininenko (2010) also found that foster children had more difficulty falling asleep than children not in care.

Recommendations from the studies about children in foster care and sleep included:

- foster children's sleep problems should be routinely assessed and foster carers should help establish good sleep hygiene in children one strategy to help reduce, as the researcher describes, delinquency (Hambrick, 2017)
- young people who are resistant to therapy may be more receptive to programs that specifically target their sleep, especially since this is a low-stigma issue (Fusco and Kulkarni, 2018)
- as foster children had more difficulty initiating sleep it may be especially important to address these problems though environmental intervention (Tininenko, 2010)
- cognitive behavioural therapy for chronic insomnia (CBT-I) has been shown to be effective in reducing the amount of time to fall asleep, increasing the total sleep time, and decreasing time spent awake during the night. CBTI has also been shown to reduce nightmares and other PTSD symptoms (Fusco and Kulkarni, 2018)
- young adults who have been in foster care could benefit from more information about how past trauma can continue to disrupt sleep (Fusco and Kulkarni, 2018)

As with the literature about fostered children and sleep, adopted children and sleep problems is also not a well-studied area. Radcliff et al.'s 2016 review finds seven studies that examine sleep in adopted children and young people but has a focus on internationally adopted children.

Cuddihy (2013) finds that maltreated children experience a significantly greater amount of sleep disturbance than their non-adopted counterparts. Schenkel's (2018) study supports

this, also finding that adopted children showed a significantly higher prevalence of any disorder initiating and maintaining sleep[8].

Rajaprakash (2017) finds that bedtime resistance, parasomnias[9], sleep onset delay and sleep anxiety are the most common disorder experienced by adopted children. Family structure, adoption history, foster placement duration and number, type of adoption, age at adoption did not affect sleep.

Schenkels (2018) asserts that more research is needed to describe the problem more thoroughly and that it would be useful to explore whether there are factors that moderate or mediate the relationship between the adoption process and sleep, such as the adoption process experience, trauma history and types of trauma experiences. Once this has been completed, sleep interventions can be tested and tailored to the child's needs.

[8] Defined as a sleep latency of more than 30 minutes on average or more than one hour on ≥1 night during the week, restless sleep, and frequent nocturnal awakenings.
[9] Parasomnias are disruptive sleep disorders that can occur during arousals from REM sleep or partial arousals from non-REM sleep. Parasomnias include nightmares, night terrors and sleepwalking.

Conclusion

This review has revealed the dearth of literature available about UASC and CiC experiencing sleep problems. The studies included suggest that some sleep problems are being experienced by these two groups so further research into these problems would be helpful to understand more about the scale and nature of them. Furthermore, preliminary evaluations and research into successful solutions to address sleep problems would be useful in shaping future projects and ensuring they use effective approaches and interventions.

The studies included have provided some initial implications and learning for practice which are common across the two groups of children. Although these would benefit from further research, the initial points of learning are:

- discussing sleep problems with young people can be less stigmatising than discussing mental health issues. This may encourage a young person to access the support needed and help to identify if any further mental health intervention is required.
- sleep problems experienced by young people should be regularly assessed, particularly for those in care who may have disrupted sleep because of moving between placements.
- CBT-I may be effective in helping UASC and CiC to overcome sleep problems.
- there is some evidence that for UASC that sleep problems and symptoms of PTSD can be confused. This is an issue for practitioners diagnosing UASC with PTSD to be mindful of.
- young people need to feel safe and sure to sleep well. This was a common theme for both UASC and CiC.

Limitations of this review

This review was conducted under a limited timeframe and therefore used a rapid review approach to search for and select the literature included. The study aimed to be as comprehensive as possible by using a combination of search terms in electronic databases, manually searching bibliographies and consulting with experts in the area. However, the review was not systematic; therefore we cannot conclude that all literature relating to UASC and sleep, and CiC and sleep problems, are included in this review.

References

General literature

1 Pluddemann, A., Aronson, J,K., Onakpoya, I., Heneghan, C. and Mahtani, K.R. 2018. Redefining rapid reviews: a flexible framework for restricted systematic reviews [online]. Available from: dx.doi.org/10.1136/bmjebm-2018-110990 [Accessed 21 January 2019].

2 Rutter, D., Francis, J., Coren, E. and Fisher., M. 2010. SCIE Research resource 1: SCIE systematic research reviews: guidelines (2nd edition) [online]. Available from: www.scie.org.uk/publications/researchresources/rr01.pdf [Accessed 21 January 2019].

3 Tricco, A.C., Langlois, E.V. and Straus, S.E. 2017. Rapid reviews to strengthen health policy and systems: a practical guide [online]. Available from: apps.who.int/iris/bitstream/10665/258698/1/9789241512763-eng.pdf?ua=1 [Accessed 21 January 2019].

Unaccompanied asylum-seeking children literature

1 Carr, H., Hatzidimitriadou, E. and Sango, P. 2017. Evaluation of the Sleep Project for Unaccompanied Asylum-Seeking Children in Kent. European Journal of Public Health [online]. 28(1), p.70. Available from: doi.org/10.1093/eurpub/cky047.150 [Accessed 21 January 2019].

2 Bronstein, I. and Montgomery, P. 2013. Sleeping Patterns of Afghan Unaccompanied Asylum-Seeking Adolescents: A Large Observational Study. PLoS ONE [online]. 8(2): e56156. Available from: doi.org/10.1371/journal.pone.0056156 [Accessed 21 January 2019].

3 Montgomery, E. 2011. Trauma, exile and mental health in young refugees. Acta Psychiatrica Scandinavica [online]. 124(440), pp.1-35. Available from: doi.org/10.1111/j.1600-0447.2011.01740.x [Accessed 21 January 2019].

4 Montgomery, E. and Foldspang, A. 2001. Traumatic experience and sleep disturbance in refugee children from the Middle East. European Journal of Public Health [online]. 11(1), pp.18-22. Available from: doi.org/10.1093/eurpub/11.1.18 [Accessed 21 January 2019].

Children in care literature

Children in foster care literature

1 Dubois-Comtois, K., Cyr, C., Pemmestri, M-H. and Godbout, R. 2016. Poor quality of sleep in foster children relates to maltreatment and placement conditions. SAGE Open [online]. Available from: doi.org/10.1177/2158244016669551 [Accessed 21 January 2019].

2 Fusco, R. A. and Kulkarni, S.J. 2018. “Bedtime is when bad stuff happens”: Sleep problems in foster care alumni. Children and Youth Services Review [online]. 95, pp. 42-48. Available from: doi.org/10.1016/j.childyouth.2018.10.024 [Accessed 21 January 2019].

3 Hambrick, E.P. 2017. Do sleep problems mediate the link between adverse childhood experiences (ACE) and delinquency in preadolescent children in foster care? The Journal of Child Psychology and Psychiatry [online]. 59(2), pp.140-149. Available from: doi.org/10.1111/jcpp.12802 [Accessed 21 January 2019].

4 Tininenko, J., Fisher, P.A., Bruce, J. and Pears, K.C. 2010. Sleep disruption in young foster children. Child Psychiatry and Human Development [online]. 41(4), pp.409-424. Available from: doi.org/10.1007/s10578-010-0177-2 [Accessed 21 January 2019].

Adopted children literature

5 Cuddihy, C., Dorris, L., Minnis, H. and Kocovska, E. 2013. Sleep disturbance in adopted children with a history of maltreatment. Adoption and Fostering [online]. 37(4), pp. 404-411. Available from: doi.org/10.1177/0308575913508715 [Accessed 21 January 2019].

6 Radcliff, Z., Baylor, A and Rybarczyk, B. 2016. Adopted youth and sleep difficulties. Pediatric Health, Medicine and Therapeutics [online]. 7, pp.165-175. Available from: doi.org/10.2147/PHMT.S119958 [Accessed 21 January 2019].

7 Rajaprakash, M. Kerr, E., Friedlander, B. and Weiss, S. 2017. Sleep Disorders in a Sample of Adopted Children: A Pilot Study. Children [online]. 4(9): 77. Available from: doi.org/10.3390/children4090077 [Accessed 21 January 2019].

8 Schenkels, E., Steinfort N., Wojciechowski M. and Verhulst S. 2018. Sleep problems in internationally adopted children: a pilot study. Nature and Science of Sleep [online]. 10, pp.335-336. Available from: doi.org/10.2147/NSS.S180769 [Accessed 21 January 2019].

Appendix

Appendix 1: search terms for unaccompanied asylum-seeking children

Topic 1	Topic 2*	Topic 3
Child*	Refugee*	Sleep*
Young*	Asylum	
Juvenile*	Undocumented	
Girl*	Migrant*	
Boy*		
Minor*		
Adolescent*		
Teen*		
Youth*		
Pube*		

'traffic' was removed from topic 2 search terms. When used in searches, articles were returned relating to sleep disruption and noise from areas with busy traffic.

Appendix 2: search terms for children in care

Topic 1	Topic 2	Topic 3
Child*	Care	Sleep*
Young*	"Foster care"	
Juvenile*	"Looked after"	
Girl*	Adopted	
Boy*	"Child protection"	
Minor*	"Child* in need"	
Adolescent*		
Teen*		
Youth*		
Pube*		

Appendix 3: electronic databases used for searches

Cochrane Library: a source of full-text information on the effects of interventions in health care. It is a key resource in evidence-based medicine.

Google Scholar: allows you to broadly search for scholarly literature across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other websites.

NSPCC library: the only UK library dedicated to child protection, safeguarding, child abuse and child neglect. Holds over 40,000 resources including inquiry reports and case reviews, training resources and text books, international journals and grey literature.

PsycINFO: an index of literature in psychology and psychological aspects of related disciplines.

PubMed: an index of biomedical literature, including all data from the Medline database from National Center for Biotechnology Information at the US National Library of Medicine.

Social Care Online: a free bibliographic database of information on all aspects of social work and social care. Containing around 150,000 records and referencing resources from the 1980s onwards. The content is updated daily.

Appendix 4: quality appraisal criteria

	Criteria	Possible fields	Inclusion criteria (where applicable)
Summary	Citation (Harvard style)	Author, year, title, publisher, journal & issue, page numbers.	N/A
	Is the source publicly available (i.e. published)?	Yes/No	Exclude if not publicly available.
	Publication year	Between 2008 and 2018	Exclude if published before 2008 unless a seminal study.
	Peer review	Peer reviewed or grey literature?	Both can be included however grey literature needs to be carefully scrutinised.
	Geographical scope of study	Multi-country, national, regional	N/A
	Geographical area of study	State country, region etc.	N/A

Relevance	Does the study contain information about sleep problems relating to either UASC or CiC?	Yes/No	Exclude if no
	Study type	Qualitative, quantitative, mixed methods etc.	N/A
	What is the research question/ purpose of the research?	[Open]	N/A
	Which group does the study address (UASC or CiC or both)?	List group	N/A
	What is the age range of the young people in the study?	[Open]	Exclude if none were 17 or younger. Exclude if study is about children aged under 11. Proceed with caution if studies include a mixed age group above and below 18 and comments are not attributed to ages.
	Are there any potential conflicts of interest? (e.g. related to the funding interests?)	Yes/No [Provide details]	Consider exclusion if yes.
Methods	Is it clear from the data source through what means evidence/ information/ data about young people / participants was collected?	Yes/No	Consider excluding if no.
	Are the study methods used appropriate to support the evidence, analysis and conclusions presented in the source?	Yes/No	Consider exclusion if no (unless there is a compelling reason to retain the article; state the reason for inclusion if so).
	Does the methodological approach appear to have been consciously adopted with awareness about the	Scale 1-5 with 5 being highest level of awareness	If solely a quantitative study then consider excluding if score is 2 or below.

	methodological choices made, and the implications of these?		
	What mechanism(s) is used to document and record young people / participant views?	[Provide details]	N/A
	If qualitative, was there a stated analytical framework used for analysis?	Yes/No	Consider exclusion if no framework was used and collection of qualitative data appears chaotic
	If quantitative, what score does the study receive on the SMS scale?	Score 1 – 5 (5 meaning RCT and 1 meaning pre and post)	Consider exclusion if scores less than 2
	How many young people or participants are included in the study? (sample size)	[Open]	N/A
Sampling	How were participants selected for the study (sampling technique)? For example random, purposive, convenience	[Open]	N/A
	What is the population from which respondents were drawn?	[Open]	N/A
	Was the sampling method appropriate to the study purpose?	Y/N	Consider exclusion if no
Limitations	Are limitations discussed adequately?	Yes/No [provide details]	Exclude if limitations are so significant that the evidence becomes highly questionable.
Ethics	Did the article undergo an ethical approval process? And was this approval granted?	Yes/No	Consider exclusion if no (and there is reason to believe there are ethical concerns)
	Do you have substantial concerns about the ethical implications of the research (effects on participants, researchers, etc.)?	Yes/No	Exclude if yes