Epidemiology and Psychiatric Sciences

cambridge.org/eps

Editorial

Cite this article: Barnett ER, Concepcion Zayas MT (2019). High-risk psychotropic medications for US children with trauma sequelae. *Epidemiology and Psychiatric Sciences* **28**, 360–364. https://doi.org/10.1017/S2045796018000616

Received: 14 September 2018
Accepted: 28 September 2018
First published online: 5 November 2018

Key words:
Child psychiatry; evidence-based psychiatry; psychotropic drugs; trauma

Author for correspondence:
Erin R. Barnett,
E-mail: Erin.R.Barnett@dartmouth.edu

© Cambridge University Press 2018

CAMBRIDGE UNIVERSITY PRESS

High-risk psychotropic medications for US children with trauma sequelae

E. R. Barnett[1] and M. T. Concepcion Zayas[2]

[1]Psychiatry, Dartmouth Institute for Health Policy and Clinical Practice, Dartmouth Trauma Interventions Research Center, Geisel School of Medicine at Dartmouth, Hanover, USA and [2]Psychiatry, Geisel School of Medicine at Dartmouth, Child, Adolescent, & Adult Psychiatrist, West Central Behavioral Health, Hanover, USA

Abstract

Children exposed to trauma are predisposed to develop a number of mental health syndromes. They are prone to under-treatment with effective psychosocial interventions and over-treatment with high-risk psychotropic medications, especially polypharmacy and the use of antipsychotics for unapproved conditions. We review the evidence for psychosocial and pharmacological treatments for mental health problems associated with high exposure to childhood trauma – identifying those in foster care as an index group – and the frequency of high-risk pharmacological practices. We describe current efforts to reduce over-treatment of children with high-risk psychotropic medications and propose further recommendations to protect and provide effective care for these vulnerable children.

Introduction

In this essay, we examine the mental health interventions provided to US children who have experienced trauma and developed psychiatric sequelae. We highlight one highly vulnerable group, children in foster care. Children with trauma histories have high rates of mental health problems, but they rarely receive recommended, evidence-based, psychosocial treatments and too often receive high-risk, unapproved, pharmaceutical treatments, such as antipsychotic medications and polypharmacy.

Childhood trauma and its resulting psychiatric morbidity are common in the USA. One-quarter to one-half of children and youth under the age of 18 years (hereafter referred to as children) experience at least one traumatic event during childhood (Finkelhor *et al.*, 2011; Adams *et al.*, 2013; Kilpatrick *et al.*, 2013). Childhood trauma refers to extremely stressful events such as physical or sexual abuse, or witnessing violence. Children who experience trauma tend to show developmental, social, and educational difficulties that extend into adulthood (Felitti *et al.*, 1998; De Bellis and Zisk, 2014; Kerker *et al.*, 2015). The US child protection system substantiates approximately 700 000 unique child victims of abuse or neglect each year (US Department of Health and Human Services and Administration for Children and Families Children's Bureau, 2017). When a case is substantiated and the child is placed in foster care, he or she not only bears the abuse and neglect that led to placement but also the trauma of removal from family, and is predisposed to mental health and behavioural problems.

Researchers estimate that roughly half of children in foster care have at least one mental health diagnosis (Burns *et al.*, 2004; Landsverk *et al.*, 2006). Those in foster care commonly have diagnoses of adjustment disorder or post-traumatic stress disorder (PTSD) (1–21% prevalence), attention-deficit/hyperactivity disorder (ADHD) (10–21%), oppositional defiant or conduct disorder (2–18%), attachment disorders (4–17%), depression (5–15%), anxiety (3–12%), developmental disorders (10%) and substance use disorders (5%) (dosReis *et al.*, 2001; Zeanah *et al.*, 2004; Oswald *et al.*, 2010). Rates of attachment disorders are much higher (40%) in samples of very young children in foster care (Zeanah *et al.*, 2004), as are rates of substance use disorders (15%) in samples of older adolescents in foster care (Narendorf and McMillen, 2010).

Treatments for disorders common in traumatised children

Several psychosocial treatments for childhood disorders related to trauma are effective (evidence-based according to research). The American Academy of Child and Adolescent Psychiatry recommends specific evidence-based psychosocial interventions (e.g. trauma-focused psychotherapy) as first-line treatment for nearly every childhood mental health disorder (Lee *et al.*, 2015). These recommendations reflect robust research on psychosocial interventions for specific mental health disorders. For example, 41 randomised controlled trials have examined the efficacy of trauma- or attachment-focused psychotherapies for children with PTSD, showing large and medium effect sizes compared with wait-list and active

https://doi.org/10.1017/S2045796018000616 Published online by Cambridge University Press

treatment controls, respectively (Morina *et al.*, 2016). Evidence-based psychosocial treatments for behavioural disorders and ADHD (Eyberg *et al.*, 2008; Fabiano *et al.*, 2009), depression (Hetrick *et al.*, 2016) and anxiety (Wang *et al.*, 2017) similarly demonstrate efficacy. Further, some evidence-based psychotherapies for children exposed to trauma have positive effects on comorbid symptoms, including depression, anxiety and disruptive behaviours (Cohen *et al.*, 2018)

Psychotropic medications that are often used for disorders common in children exposed to trauma have also been studied extensively, but the findings and recommendations are more negative and cautious (McLaren *et al.*, 2018). No psychotropic medications have demonstrated efficacy and received US Food and Drug Administration approval for childhood PTSD, attachment disorders or disruptive behaviour disorders (e.g. oppositional defiant disorder, conduct disorder), with the single exception of ADHD. Psychotropic medications are efficacious for childhood ADHD and anxiety, but psychotropic medications are recommended only after psychosocial treatment has failed or in combination with psychosocial treatment, with the exception of ADHD in older children (Chan *et al.*, 2016; Wang *et al.*, 2017). The evidence for efficacy of psychotropic medications for childhood depression is mixed and highly controversial (Cox *et al.*, 2014).

A major caveat concerns serious side effects of antipsychotics, antidepressants, anxiolytic medications, stimulants and mood-stabilising medications in children. Different medicines can have major negative impacts on metabolism, weight gain, growth, cognitive function and neurological function – especially when used in combination with other medications and over long periods of time. Nearly all studies have examined the safety and efficacy of a single medication for children with a single diagnosis. Guidelines also address single diagnoses. In real-world practice, however, mental health comorbidities are the norm, not the exception, among traumatised children (Finkelhor *et al.*, 2011); and multiple medications (polypharmacy) are often used for comorbid diagnoses and symptoms. Few studies have examined the safety and efficacy of two or more psychotropic medications used concurrently in children. What is known, however, is that each additional medication increases the risks for adverse drug interactions and additional side effects, such as weight gain (Jureidini *et al.*, 2013).

Antipsychotic medications present significant risks for children when not monitored appropriately. The common side effects include somnolence and sedation, weight gain, metabolic syndrome, hyperprolactinemia and accompanying galactorrhoea and gynaecomastia, irregular menses, potentially irreversible neurological effects and direct cardiovascular effects (Zuddas *et al.*, 2011; Cohen *et al.*, 2012). Across trials, numbers needed to harm begin at one or two for somnolence and sedation, weight gain and neurological effects (Zuddas *et al.*, 2011). Receiving an antipsychotic medication doubles or triples the risk of obesity among those in foster care; receiving two or more antipsychotics increases the risk of obesity five-fold (Allaire *et al.*, 2016). The effects on academic and social functioning, as well as the long-term effects (e.g. neuro-cognitive) on development, are unknown. Further, children receiving antipsychotics should receive regular monitoring, including blood tests, but monitoring is remarkably poor (Delate *et al.*, 2014; McLaren *et al.*, 2017).

Over-treatment with psychotropic medications

Mitigating the health problems stemming from childhood trauma should be a top priority for public health (Lowe *et al.*, 2015), but US children with mental health needs related to trauma tend to receive inappropriate or no mental health services (Burns *et al.*, 2004; Romanelli *et al.*, 2009). The treatments they do receive have limited evidence. Our index group, children in foster care, are more likely to receive a psychotherapy that is not evidence-based than one that is (Landsverk *et al.*, 2006). Further, children with disorders related to trauma often receive inappropriate mental health treatment with high-risk pharmacological practices that are not supported by the evidence and have strong potential to cause harm (Zito *et al.*, 2008; Kutz, 2011; Vanderwerker *et al.*, 2014).

The most concerning practices are the use of two or more psychotropic medications concurrently (polypharmacy) and the use of antipsychotic medications for non-approved conditions (only psychosis, bipolar disorder, aggression with autism and Tourette's disorder are approved by the Food and Drug Administration for use in children). Among the many children in foster care receiving at least one psychotropic medication (Raghavan and McMillen, 2008; Leslie *et al.*, 2010; Kutz, 2011), 41% receive three different classes of medications and 16% receive four or more (Zito *et al.*, 2008). The use of antipsychotic medications is also common among children in foster care (Zito *et al.*, 2008). In one study, nearly one-third of children in foster care who received any antipsychotic received two or more concomitantly (dosReis *et al.*, 2011).

In sum, concerns about over-treatment of children with trauma sequelae are several. First, contrary to recommendations, many of these children receive medications before they receive psychosocial treatments or without receiving effective psychosocial treatments concurrently. Second, many of the medications they receive have neither research support nor Food and Drug Administration approval for the specific conditions for which they are used. Third, medications that are approved are often used over months and years, not for the brief time periods for which they have been tested. Fourth, medications are often used in combinations (polypharmacy) that have not been tested for efficacy or safety. Fifth, many psychotropic medications, including antipsychotics, antidepressants, mood stabilisers and antianxiety medications, have serious side effects, which are often not monitored.

What has been done?

Concerns about over-treatment with psychotropic medications of US children in foster care have led to federal legislation mandating that state foster care systems and their Medicaid (health insurance) partners create policies to promote oversight of prescribing to children (US Department of Health and Human Services Administration for Children Youth and Families Children's Bureau, 2012). Some states have successfully implemented oversight programmes, both within their general Medicaid programme and specifically focused on children in foster care. These programmes include increased education and training for families and clinicians, audit and feedback processes for clinicians, expert consultation systems for clinicians and prior authorisations or second opinions for certain medications (Mackie *et al.*, 2017).

For the general child Medicaid population, several strategies have been successful. An education, audit and feedback initiative targeting high-prescribing clinicians demonstrated significant decreases in the use of multiple antipsychotics, prescriptions to young children and polypharmacy (defined as four or more psychotropic medications used concomitantly) (Thackeray *et al.*, 2018). At least two other strategies – a peer-review partnership with clinical pharmacists and child psychiatrists (Pennap *et al.*,

https://doi.org/10.1017/S2045796018000616 Published online by Cambridge University Press

2018), and an expert consultation programme (Barclay *et al.*, 2017) – have demonstrated significant reductions in the use of antipsychotics in children.

In a study of the foster care population, seven states developed and evaluated psychotropic oversight programmes with partial success between 2011 and 2015 (Center for Health Care Strategies, 2018). Research in progress compares the effectiveness of various oversight programmes within the foster care population (Patient Centered Outcomes Research Institute, 2018).

Additional recommendations

Monitoring interventions may be helpful but will likely be only partially effective without more fundamental changes. Clinicians, families and children need access to accurate information (not advertising from industry) and greater involvement in decision-making; researchers need to study real-world practice, including discontinuance of unnecessary medications; and policy makers need to listen to consumers and providers and protect public health.

Workforce

Clinicians in training and those already working with children need to be prepared to provide trauma-informed, evidence-based care. They must be able to assess for exposure to traumatic events and other adverse childhood experiences as well as evaluate mental health symptoms and functioning in order to conceptualise treatment holistically. All clinicians should receive training in providing evidence-based interventions to children who have experienced trauma.

Children and families

Children and caregivers should participate in what is called shared decision-making. Evidence-based medicine in fact assumes that children and caregivers have valuable information on history, goals and preferences that should be included in clinical decisions. But children and their caregivers, including parents and those caring for children in foster care, often lack accurate information about trauma and evidence-based interventions that would help them participate in treatment decisions (Brinkman *et al.*, 2013; Barnett *et al.*, in press). Further, they may experience pressure from clinicians, schools and the pharmaceutical industry (false advertising) to improve a child's behaviour rapidly with medications. They therefore need to know that effective psychosocial treatments are available, and that no psychotropic medications have been approved by the Food and Drug Administration for children with PTSD, attachment disorders and most disruptive behaviour disorders. They need to understand the dangers of psychotropic medications, and to understand and accept their role in careful monitoring when a medication is used.

Research

Researchers need to study psychosocial treatments and medication practices in real-world conditions. What is needed to increase access to evidence-based interventions and to decrease the use of potentially harmful medications? If excessive medications are being added in hospital settings (a common complaint), outpatient prescribers need to know how to taper and discontinue the most dangerous ones – a procedure called deprescribing (Bellonci and Carlson, 2016). Researchers should study ways to ensure that parents, caregivers and youth understand the potential benefits and risks, and necessary monitoring, for various interventions. Researchers could also examine how systems could support the monitoring of high-risk medications.

Policy

Patients, providers and policy makers have been misled again and again by the pharmaceutical industry. Policy makers need to listen to consumers and providers and address implementing evidence-based practices and eliminating harmful practices. Unlike European countries, the USA has not instituted universal health insurance and registry based quality improvement. But policy makers could inject more transparency and accountability into mental health policies that affect our most vulnerable children (Noonan and Miller, 2013). Further, families and other stakeholders need easy access guidelines and procedures to follow when they are receiving poor care (Noonan and Miller, 2013).

Conclusions

Childhood trauma can have profound effects on all aspects of development and lead to long-term mental and physical health problems. Our most vulnerable children too often become our most troubled adults. These children need access to effective treatments as well as protection from harmful treatments. Doing so in the USA will require major investments in training the workforce, empowering children and families, enhancing research and creating effective policies.

Data

Not applicable.

Acknowledgements. We are grateful to our colleagues in the Vulnerable Children Research Group for their continued support and encouragement.

Financial support. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflict of interest. None.

Ethical standards. Not applicable.

References

Adams ZW, McCart MR, Zajac K, Danielson CK, Sawyer GK, Saunders BE and Kilpatrick DG (2013) Psychiatric problems and trauma exposure in nondetained delinquent and nondelinquent adolescents. *Journal of Clinical Child and Adolescent Psychology* **42**, 323–331.

Allaire BT, Raghavan R and Brown DS (2016) Morbid obesity and use of second generation antipsychotics among adolescents in foster care: evidence from Medicaid. *Children & Youth Services Review* **67**, 27–31.

Barclay RP, Penfold RB, Sullivan D, Boydston L, Wignall J and Hilt RJ (2017) Decrease in statewide antipsychotic prescribing after implementation of child and adolescent psychiatry consultation services. *Health Services Research* **52**, 561–578.

Barnett ER, Concepcion Zayas MT, Zisman-Ilani Y and Bellonci C (in press) Patient-centered psychiatric care for youth in foster care: a systematic and critical review. *Journal of Public Child Welfare*.

Bellonci C and Carlson GA (2016) 24.0 deprescribing in child and adolescent psychiatry: where, when, and how to safely reduce polypharmacy in clinical settings. *Journal of the American Academy of Child & Adolescent Psychiatry* **55**, S37.

https://doi.org/10.1017/S2045796018000616 Published online by Cambridge University Press

Brinkman WB, Hartl Majcher J, Poling LM, Shi G, Zender M, Sucharew H, Britto MT and Epstein JN (2013) Shared decision-making to improve attention-deficit hyperactivity disorder care. *Patient Education and Counseling* **93**, 95–101.

Burns BJ, Phillips SD, Wagner HR, Barth RP, Kolko DJ, Campbell Y and Landsverk J (2004) Mental health need and access to mental health services by youths involved with child welfare: a national survey. *Journal of the American Academy of Child and Adolescent Psychiatry* **43**, 960–970.

Center for Health Care Strategies (2018) Improving the Use of Psychotropic Medication for Children in Foster Care: State Profiles. Available at https://www.chcs.org/resource/psychotropic-medication-stakeholder-engagement/.

Chan E, Fogler JM and Hammerness PG (2016) Treatment of attention-deficit/hyperactivity disorder in adolescents: a systematic review. *The Journal of the American Medical Association* **315**, 1997–2008.

Cohen D, Bonnot O, Bodeau N, Consoli A and Laurent C (2012) Adverse effects of second-generation antipsychotics in children and adolescents: a Bayesian meta-analysis. *Journal of Clinical Psychopharmacology* **32**, 309–316.

Cohen JA, Deblinger E and Mannarino AP (2018) Trauma-focused cognitive behavioral therapy for children and families. *Psychotherapy Research* **28**, 47–57.

Cox GR, Callahan P, Churchill R, Hunot V, Merry SN, Parker AG and Hetrick SE (2014) Psychological therapies versus antidepressant medication, alone and in combination for depression in children and adolescents. *The Cochrane Database of Systematic Reviews* **14**, 11.

De Bellis MD and Zisk A (2014) The biological effects of childhood trauma. *Child and Adolescent Psychiatric Clinics of North America* **23**, 185–222, vii.

Delate T, Kauffman YS, Botts SR, Wong C and Gaughan KM (2014) Metabolic monitoring in commercially insured pediatric patients newly initiated to take a second-generation antipsychotic. *JAMA Pediatrics* **168**, 679–681.

dosReis S, Zito JM, Safer DJ and Soeken KL (2001) Mental health services for youths in foster care and disabled youths. *American Journal of Public Health* **91**, 1094–1099.

dosReis S, Yoon Y, Rubin DM, Riddle MA, Noll E and Rothbard A (2011) Antipsychotic treatment among youth in foster care. *Pediatrics* **128**, e1459–e1466.

Eyberg SM, Nelson MM and Boggs SR (2008) Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child and Adolescent Psychology* **37**, 215–237.

Fabiano GA, Pelham Jr WE, Coles EK, Gnagy EM, Chronis-Tuscano A and O'Connor BC (2009) A meta-analysis of behavioral treatments for attention-deficit/hyperactivity disorder. *Clinical Psychology Review* **29**, 129–140.

Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP and Marks JS (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) study. *American Journal of Preventive Medicine* **14**, 245–258.

Finkelhor D, Turner H, Hamby S and Ormrod R (2011) *Polyvictimization: Children's Exposure to Multiple Types of Violence, Crime, and Abuse (NCJ 235504)*. Washington, DC: US Government Printing Office.

Hetrick SE, Cox GR, Witt KG, Bir JJ and Merry SN (2016) Cognitive behavioural therapy (CBT), third-wave CBT and interpersonal therapy (IPT) based interventions for preventing depression in children and adolescents. *The Cochrane Database of Systematic Reviews* **9**, 8.

Jureidini J, Tonkin A and Jureidini E (2013) Combination pharmacotherapy for psychiatric disorders in children and adolescents: prevalence, efficacy, risks and research needs. *Paediatric Drugs* **15**, 377–391.

Kerker BD, Zhang J, Nadeem E, Stein RE, Hurlburt MS, Heneghan A, Landsverk J and McCue Horwitz S (2015) Adverse childhood experiences and mental health, chronic medical conditions, and development in young children. *Academic Pediatrics* **15**, 510–517.

Kilpatrick DG, Resnick HS, Milanak ME, Miller MW, Keyes KM and Friedman MJ (2013) National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of Traumatic Stress* **26**, 537–547.

Kutz G (2011) *Foster Children: HHS Guidance Could Help States Improve Oversight of Psychotropic Prescriptions* [GAO-12-270T]. Washington, DC: General Accounting Office.

Landsverk JA, Burns B, Stambaugh LF and Rolls-Reutz J (2006) Mental health care for children and adolescents in foster care: Review of research literature. Available at http://www.casey.org/Resources/Publications/pdf/MentalHealthCareChildren.pdf (Accessed August 2018).

Lee T, Fouras G and Brown R (2015) Practice parameter for the assessment and management of youth involved with the child welfare system. *Journal of the American Academy of Child and Adolescent Psychiatry* **54**, 502–517.

Leslie LK, Raghavan R, Zhang J and Aarons GA (2010) Rates of psychotropic medication use over time among youth in child welfare/child protective services. *Journal of Child and Adolescent Psychopharmacology* **20**, 135–143.

Lowe SR, Blachman-Forshay J and Koenen KC (2015) Trauma as a public health issue: Epidemiology of trauma and trauma-related disorders. In Schnyder U and Cloitre M (eds), *Evidence Based Treatments for Trauma-Related Psychological Disorders*. Switzerland: Springer International Publishing, pp. 11–40.

Mackie TI, Hyde J, Palinkas LA, Niemi E and Leslie LK (2017) Fostering psychotropic medication oversight for children in foster care: a national examination of states' monitoring mechanisms. *Administration & Policy in Mental Health* **44**, 243–257.

McLaren JL, Brunette MF, McHugo GJ, Drake RE and Daviss WB (2017) Monitoring of patients on second-generation antipsychotics: a national survey of child psychiatrists. *Psychiatric Services* **68**, 958–961.

McLaren JL, Barnett ER, Concepcion Zayas MT, Lichtenstein J, Acquilano SC, Schwartz LM, Woloshin S and Drake RE (2018) Psychotropic medications for highly vulnerable children. *Expert Opinion on Pharmacotherapy* **19**, 547–560.

Morina N, Koerssen R and Pollet TV (2016) Interventions for children and adolescents with posttraumatic stress disorder: a meta-analysis of comparative outcome studies. *Clinical Psychology Review* **47**, 41–54.

Narendorf SC and McMillen JC (2010) Substance use and substance use disorders as foster youth transition to adulthood. *Children and Youth Services Review* **32**, 113–119.

Noonan K and Miller D (2013) Fostering transparency: a preliminary review of policy governing psychotropic medications in foster care. *Hastings Law Journal* **65**, 1551.

Oswald SH, Heil K and Goldbeck L (2010) History of maltreatment and mental health problems in foster children: a review of the literature. *Journal of Pediatric Psychology* **35**, 462–472.

Patient Centered Outcomes Research Institute (2018) Comparing Effects of State Policies to Monitor Mental Health Medicines Given to Children in Foster Care. Available at https://www.pcori.org/research-results/2015/comparing-effects-state-policies-monitor-mental-health-medicines-given (Accessed 1 September 2018).

Pennap D, Burcu M, Safer DJ and Zito JM (2018) The impact of a state Medicaid peer-review authorization program on pediatric use of antipsychotic medications. *Psychiatric Services* **69**, 293–299.

Raghavan R and McMillen JC (2008) Use of multiple psychotropic medications among adolescents aging out of foster care. *Psychiatric Services* **59**, 1052–1055.

Romanelli LH, Landsverk J, Levitt JM, Leslie LK, Hurley MM, Bellonci C, Gries LT, Pecora PJ, Jensen PS and Child Welfare-Mental Health Best Practices G (2009) Best practices for mental health in child welfare: screening, assessment, and treatment guidelines. *Child Welfare* **88**, 163–188.

Thackeray J, Crane D, Fontanella C, Sorter M, Baum R and Applegate M (2018) A Medicaid quality improvement collaborative on psychotropic medication prescribing for children. *Psychiatric Services* **69**, 501–504.

US Department of Health and Human Services Administration for Children Youth and Families Children's Bureau (2012) Information Memorandum Promoting the Safe, Appropriate, and Effective Use of Psychotropic Medication for Children in Foster Care. Available at http://www.acf.hhs.gov/programs/cb/resource/im1203.

US Department of Health and Human Services, Administration for Children and Families Children's Bureau (2017) National Child Abuse and Neglect Data System (NCANDS) child File, FFY 2000–2016.

https://doi.org/10.1017/S2045796018000616 Published online by Cambridge University Press

Vanderwerker L, Akincigil A, Olfson M, Gerhard T, Neese-Todd S and Crystal S (2014) Foster care, externalizing disorders, and antipsychotic use among Medicaid-enrolled youths. *Psychiatric Services* **65**, 1281–1284.

Wang Z, Whiteside SPH, Sim L, Farah W, Morrow AS, Alsawas M, Barrionuevo P, Tello M, Asi N, Beuschel B, Daraz L, Almasri J, Zaiem F, Larrea-Mantilla L, Ponce OJ, LeBlanc A, Prokop LJ and Murad MH (2017) Comparative effectiveness and safety of cognitive behavioral therapy and pharmacotherapy for childhood anxiety disorders: a systematic review and meta-analysis. *JAMA Pediatrics* **171**, 1049–1056.

Zeanah CH, Scheeringa M, Boris NW, Heller SS, Smyke AT and Trapani J (2004) Reactive attachment disorder in maltreated toddlers. *Child Abuse & Neglect* **28**, 877–888.

Zito JM, Safer DJ, Sai D, Gardner JF, Thomas D, Coombes P, Dubowski M and Mendez-Lewis M (2008) Psychotropic medication patterns among youth in foster care. *Pediatrics* **121**, e157–e163.

Zuddas A, Zanni R and Usala T (2011) Second generation antipsychotics (SGAs) for non-psychotic disorders in children and adolescents: a review of the randomized controlled studies. *European Neuropsychopharmacology* **21**, 600–620.

https://doi.org/10.1017/S2045796018000616 Published online by Cambridge University Press