OBJECTIVE:
A large proportion of pediatric patients with attention-deficit/hyperactivity disorder (ADHD) has associated sleep problems which not only affect the child's well-being but also impact family functioning. Management of sleep problems is consequently an important aspect of overall ADHD management in pediatric patients. Although some drugs are being used off-label for the management of pediatric insomnia, there is scant clinical evidence supporting their use. Our aim was to identify and assess the quality of published studies reporting the safety, tolerability and efficacy of drugs used for treating behavioral insomnia in children with ADHD.

METHODS:
After an initial screen to determine which drugs were most commonly used, we conducted a systematic review of English-language publications from searches of PubMed, EMBASE, PsycINFO and two trial register databases to February 2017, using keywords 'clonidine', 'melatonin', 'zolpidem', 'eszopiclone', 'L-theanine', 'guanfacine', 'ADHD', 'sleep disorder' and 'children'. For quality assessment of included studies, we used the CONSORT checklist for randomized control trials (RCTs) and the Downs and Black checklist for non-RCTs.

RESULTS:
Twelve studies were included. Two case series for clonidine, two RCTs and four observational studies for melatonin and one RCT each for zolpidem, eszopiclone, L-theanine and guanfacine. Of the 12 included studies, only one on eszopiclone scored excellent for the quality. The quality of the rest of the studies varied from moderate to low. For clonidine, melatonin, and L-theanine, improvements in sleep-onset latency and total sleep duration were reported; however, zolpidem, eszopiclone and guanfacine failed to show any improvement when compared with placebo. Clonidine, melatonin, L-theanine, eszopiclone and guanfacine were well tolerated with mild to moderate adverse events; zolpidem was associated with neuropsychiatric adverse effects.

CONCLUSION:
There is generally poor evidence for prescribing drugs for behavioral insomnia in children with ADHD. Further controlled studies are warranted.