**TITLE PAGE**

Title: Caught in the eye of the storm: a qualitative study of views and experiences of planned drug holidays from methylphenidate in child and adolescent ADHD treatment

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**Abbreviated running title:** Qualitative study of drug holidays in ADHD treatment

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# ABSTRACT

*Background:* Attention deficit hyperactivity disorder (ADHD) can be treated with stimulant medication such as methylphenidate. Although effective, methylphenidate can cause serious side-effects, including suppressed appetite, growth retardation and sleep problems. A drug holiday is a deliberate interruption of pharmacotherapy for a defined period of time and for a specific clinical purpose, for example for appeasing side-effects. Whilst some international guidelines recommend introducing drug holidays in ADHD treatment, this is not practised routinely. Our aim was to examine the views and experiences of planned drug holidays from methylphenidate in children and adolescents with ADHD.

*Method:* In-depth interviews with adults shaping treatment decisions in child and adolescent ADHD. Child and Adolescent Mental Health Services (CAMHS) practitioners (n=8), General Practitioners (n=8), teachers (n=5), and mothers of children with ADHD (n=4) were interviewed in a UK setting. Interview transcripts were analysed using grounded theory.

*Results:* Methylphenidate eases the experience of the child amid problems at home and at school and once started is mostly continued long-term. Some families do practise short-term drug holidays at weekends and longer-term ones during school holidays. The decision to introduce drug holidays is influenced by the child’s academic progress, the parents’ ability to cope with the child, as well as medication beliefs. Trialling a drug holiday is thought to allow older children to self-assess their ability to manage without medication when they show signs of wanting to discontinue treatment prematurely.

*Conclusions:* Planned drug holidays could address premature treatment cessation by enabling adolescents to assess repercussions under medical supervision.

**KEY PRACTITIONER MESSAGES:**

* Benefits of stimulant medication in ADHD trigger prolonged medication usage and dose increases, which can result in serious side-effects
* Guidelines endorse ADHD drug holidays for catch-up when growth is suppressed or for reviewing need
* Drug holidays in ADHD are not deliberated routinely by physicians, but some parents introduce non-school-day drug holidays to reduce side-effects and combat drug tolerance
* While complete ADHD medication cessation might not be routinely deliberated for primary-school-aged children, drug holidays are regarded as helpful in monitoring consequences of premature discontinuation in adolescents.
* Practitioners should encourage planned drug holidays for older children to address premature treatment cessation.

In the UK, medication is the first-line treatment for attention deficit hyperactivity disorder (ADHD) with severe symptoms and impairment, and the second line for moderate impairment (which is managed primarily with parent-training/education programmes), in school-aged children and young people (NICE, 2008). Stimulant medications or atomoxetine are used and are effective in reducing the symptoms of ADHD and allowing children to focus on academic work (Hechtman, Abikoff, Klein, et al., 2004). Parents tend to continue drug treatment long term, in a process described as “doing what helps most” (Cormier, 2012). This is despite the findings of an 8-year prospective follow-up of children treated for ADHD in a multisite study (MTA – Multimodal Treatment of Attention Deficit Hyperactivity Disorder) which did *not* show any long-term advantage of medication beyond two years in most cases (Molina, Hinshaw, Swanson, et al., 2009).

Parents and children report satisfaction with behavioural and academic improvements with stimulant medication (Thorell, & Dahlstrom, 2009; Meaux, Hester, Smith, et al., 2006), but parents can also express medication-related concerns (Carpenter-Song, 2008; Singh, 2003). The long-term side-effects of stimulant medication have not been studied sufficiently, but short-term adverse effects are drug-class related; for stimulants these include suppression of appetite and growth, and difficulties with sleep (Faraone, Biederman, Morley, et al., 2008). It is notable, however, that un-medicated children with ADHD also suffer from sleep problems (Stein, 1999). Some parents are reported to give their children a break from stimulant medication (Wilens, MCBurnett, Stein, M, et al., 2005; Hugtenburg, Griekspoor, De Boer, et al., 2005; DosReis, Jito, Safer, et al., 2003). Between 25% and 70% of families worldwide practise ADHD drug holidays, mainly with stimulant medication, in particular on non-school days (Ibrahim & Donyai, 2014). Drug holidays are defined as a deliberate interruption of pharmacotherapy for a defined period of time and for a specific clinical purpose (Hownland, 2009). It is believed that parents introduce ADHD drug holidays because they want to check the continuing need for medication, have concerns about adverse effects, believe medication is only needed on school days, or wish to free the child from medication (Bussing & Gary, 2001; Singh, 2005; Wong, Asherson, Bilbow, et al., 2009).

Guidelines for the implementation of medication breaks for ADHD vary widely across the world. The UK National Institute for Health and Care Excellence (NICE) guidelines recommend a planned break from ADHD medication during school holidays to facilitate catch up of any suppressed growth (NICE, 2008). The European guidelines on managing adverse effects of ADHD medication suggest taking into account ‘the risk-beneﬁt balance’ of drug holidays (Graham, Banaschewski, Buitelaar, et al., 2011). Internationally, breaks from medication have been recommended to test for continuing need, in particular in patients who remain symptom-free for more than one year (NICE, 2008; ICSI, 2010). A recent comprehensive review suggests that longer breaks can enable child growth, whilst shorter breaks could reduce insomnia and improve appetite (Ibrahim & Donyai, 2014). However, many physicians do not discuss planning for drug holidays from ADHD medication with children and families (Stockl, Hughes, Jarrar, et al., 2003; Salmon & Kemp, 2002).

Despite existing literature on perspectives of health professionals’ on ADHD and accompanying clinical dilemmas (Kildea, Wright, Davies, 2011), the issue of drug holidays is largely absent from the literature. One North American study found that clinicians discussed drug holidays in ADHD treatment in terms of general harm and toxicity and specific adverse effects and drug tolerance (Rafalovich, 2005). No studies have systematically investigated practitioners’ views about drug holidays in ADHD. The views of teachers, another key adult group with a perspective on ADHD (Einarsdottir, 2008), has also not been investigated. The purpose of this qualitative study was to explore the views and experiences of those involved with raising, providing care for, and teaching children and adolescents with ADHD in relation to planned drug holidays from methylphenidate. Our aim was to explain these views using grounded theory and an interpretivist approach. Grounded theory has its roots in sociology and is based on a philosophy that theory is discovered by examining concepts grounded in the data, which are then integrated into a core category—within an interview strategy, participants describe their experience while the interviewer probes for detail and clarity (Starks and Trinidad, 2007). The interpretivist approach is concerned with deconstructing the meanings of the phenomenon being researched in order to explain why it operates in the way that it does (Thorne, 2000).

# METHOD

**Design**

Prescribing methylphenidate for children and adolescents with ADHD is governed by shared-care arrangements between primary- and secondary-care professionals in the locality of this research, where an annual discussion of a 2-week drug holiday is recommended. Professionals educating or caring for children and adolescents with ADHD were recruited using purposive sampling, as described below. One author (KI) carried out semi-structured face-to-face interviews using interview schedules focussing on descriptions of ADHD and referral and diagnosis processes, before considering beliefs, personal experiences and views of medication taking/giving and methylphenidate drug holidays. Written consent was obtained and the interviews audio-recorded. Participants were recruited until no more new and significant concepts emerged (i.e. sampling saturation) (Corbin & Strauss, 2008).

**Sample**

Child and Adolescent Mental Health Services (CAMHS) practitioners were approached via the second author (CV) who is a CAMHS consultant at a community and mental health hospital Trust in Berkshire. CV emailed an invitation letter and information sheet to all CAMHS practitioners within the Trust. Eight CAMHS practitioners from four NHS clinics responded and took part in the study (5 female, 3 male); the sample included CAMHS doctors (n=5), and ADHD specialist nurses (n=3). General practitioners (GPs) were recruited via an invitation letter and information sheet posted to 150 GPs selected at random from publicly-available NHS addresses in Berkshire. Using the ‘snowball’ technique, two of the recruited GPs passed on the invitation to their own contacts, to recruit two additional GPs. The GPs (n=8; 2 female, 6 male) were recruited from 6 different practices.

In the UK, state (publicly-funded) schools provide support to children with special needs, including those with ADHD, via assigned Special Educational Needs Coordinator (SENCO) teachers. SENCO teachers were approached by enlisting the help of a SENCO educator based at the University of Reading. This colleague emailed an invitation letter and information sheet to SENCO teachers based in state primary and secondary schools within Berkshire. Three SENCO teachers (all female) were recruited. Using the ‘snowball’ technique, the recruited SENCO teachers passed on the invitation to non-SENCO teacher colleagues with previous experience of dealing with children with ADHD, resulting in the recruitment of two non-SENCO teachers (both female) from two different schools. Parents of children with ADHD were recruited by emailing information about the study to all staff working within the University of Reading, who were invited either to take part or pass on the invitation to their social networks. Four mothers of children with ADHD were recruited in this way.

**Data analysis**

The interviews were transcribed verbatim, password protected, and made anonymised/de-identifiable. One author (KI) ensured data integrity in consultation with the senior author (PD). Grounded theory methodology was used for analysis (Corbin & Strauss, 2008). The process involved moving backwards and forwards from one level of abstraction to another using coding and constant comparison, hand-in-hand with theoretical sampling. Constant comparison was within interviews, within participant groups, then between participant groups. Data were coded at open, axial, and selective levels to develop categories. Using the paradigm model (Corbin & Strauss, 2008), *causal conditions*, *actions/interactions* and *consequences* were identified for each category. An overarching theoretical scheme interrelated the categories, identifying a core category to explain participants’ experiences (see Figure 1). The findings were member-checked and discussed with a panel of 12 CAMHS practitioners who provided feedback. A final report sent to all participants also returned feedback. Data validation was demonstrated in triangulation (collecting data from 4 groups), description of study procedures, peer debriefing, and audit trails.

**Researcher characteristics and reflexivity**

KI, a Syrian pharmacist and doctoral student, conducted the interviews. As a non-UK national this empowered KI to ask neutral questions where the senior author (PD), might have faced complications due to professional involvement. The senior author provided guidance and supported the analyses. A CAMHS consultant, CV was a second supervisor and co-author of this paper and working together increased trustworthiness.

The Chair of the South Central, Berkshire NHS Research Ethics Committee (REC) advised that the research did not require NHS REC review because it involved interviews with NHS staff and not patients. The study was reviewed and approved by the University of Reading REC (reference UREC 12/18), the Berkshire NHS Research & Development office (letter of access granted 22/06/2012) and the Thames Valley Primary Care Research Partnership (reference TV84). We alerted the University of Reading REC through protocol amendments and received supplementary ethical approvals when theoretical sampling led us to interview teachers and parents of school-aged children.

# RESULTS

Three main categories, couched in terms of views and experiences of methylphenidate drug holidays in child and adolescent ADHD as conceived by the participants, are described below. The core category ‘Caught in the eye of the storm’, encapsulates the findings.

**Category 1: Becoming a good child**

This category explains the effect of medication on the child with ADHD (see also Figure 2).

*Causal conditions*: The symptoms of ADHD are problematic in two main settings: school and home. Not conforming to school norms can be seen as a barrier to learning. School teachers play a central role in identifying children with ADHD-like symptoms, noticing a range of behaviours. Depending on their experience and preconceptions, teachers can raise the question of ADHD with the parents, advising a medical referral in some cases. Parents can identify a range of persistent problems within the home independently and they can also encourage schools to make a referral for an assessment. Ultimately, these conditions lead some parents to pursue a medical opinion.

*Actions/interactions:* Receiving an ADHD diagnosis is a relief for some families, providing an explanation for the challenging behaviours. A child diagnosed with ADHD might be offered medication, in line with UK guidelines. Different factors affect CAMHS doctors’ decision to prescribe. Although some parents delay accepting ADHD medication, others accept it hoping for a positive impact on behaviours and schooling. A range of factors influence families’ decision to accept the first prescription. Some resistant parents might well change their minds when the child continues to experience behavioural difficulties at school or still struggles academically.

*Consequences:* Medication eases the experience of the child amid a storm of problems at home and at school. Core ADHD symptoms are reduced and academic performance enhanced. The child conforms to a range of expectations. The improvements can increase the child’s self-esteem, allowing them to remain in mainstream schooling. To teachers, medication increases children’s ability to listen to instructions and makes them more independent in their learning, as exemplified below:

*“Actually it made a difference so quickly, and it was accessing in groups, his levels improved drastically, he could sit and could access it really.” (SENCO Teacher 3)*

*“But it is quite interesting in how teachers will say actually they’re much more amenable and more able to sit.” (CAMHS 7)*

At home parents observe significant improvements in child behaviour, and the bigger family and circle of friends can also benefit:

*“The grandparents, the aunts, uncles. We can actually spend time out as a family without it being too stressful So taking the medication, it definitely helps to spend more time with them because they’re, I would decide that I wouldn’t want to go and spend time with the family with (child's name removed) because it would cause upset.” (Parent 1)*

*“Their parents will be telling us that oh, he is a very calm, contented little boy, listening to us well. They just tell that he’s a good boy, listens well, and all this stuff.” (CAMHS 4)*

Ultimately medication results in changes that are viewed positively, and ‘Becoming a good child’ captures adults’ view of the child on medication.

**Category 2: Keeping the wheel spinning round**

This category encapsulates the long-term relationship with medication and consideration of drug holidays (see also Figure 3).

*Causal conditions:* Medication can be associated with a range of adverse effects, as exemplified below:

*“The other side effects are eating. Doesn’t really eat, normally he eats all day, everything, all day, he's a really great vegetable and fruit eater so that’s great, but once he’s taken medication you’ve got about a ten minute window to get some food into him, and it’s a struggle to get it into him, and then he can go all day, he won’t eat while he’s at school.” (Parent 2)*

*“Although, now the other side is I’ve seen children who just appear to be, less themselves, less sparkly, I suppose. I can’t really describe it very well, it seemed to dampen their personality, that’s how I would describe it.” (SENCO Teacher 2)*

This is compounded by medication dose increases, implemented to sustain beneficial effects over time:

*“And we have, the dose has gone up since he’s been on it since last June. So he started off on 10mg for a couple of weeks and then went up to 20mg, and then in November we put him up to 30mg, so that was, I guess, his system was getting used to it.” (Parent 1)*

*“Well what she found, when she went onto the Ritalin, she’s just had a review with the doctor and he’s increased the dosage, and I suspect that’s exactly the pattern that’s going to happen between now and the end of June, that he will just continue to up the dose so that she can get through this academic year.” (Parent 3)*

Parents worry about adverse effects on the child’s temperament, and appetite and eating. Yet, the medication is viewed essential for functioning at school. Some parents can cope with the child at home without medication, viewing it only necessary for the school setting. Some parents were viewed less able to cope without medication, believing it to be necessary for keeping both family and school life under control:

*“Whereas I think other parents are less able to cope with the hyperactive behaviour at home and are more motivated themselves to control behaviour across the whole spectrum.” (CAMHS 4)*

Teachers worried about the impact of ADHD drug holidays. They contrasted children’s behaviour prior to starting medication and afterwards, appearing reluctant to want to risk the loss of significant improvements.

*Actions/interactions:* CAMHS practitioners tended to perceive medication side-effects as relatively easily manageable, suggesting a range of actions, as exemplified below:

*“The breaks are quite useful, I mean certainly if appetite and sleep are affected, having a break is a good thing because their appetites come back and they tend to sleep better.” (CAMHS 1)*

*“We say, well we can try an alternative treatment like non stimulants, so you can move on to something else.” (CAMHS 5)*

To this group, the positive changes overall outweighed negative aspects of medication. GPs expressed concerns about stimulants:

*“Well do they still need it? Why should I give medication which is unnecessary? Should we be doing that especially in children with growing brains and all this sort of thing?” (GP 1)*

*“Why prescribe when you don’t have to in terms of cost on NHS?” (GP 2)*

The child’s doctor might advise drug holidays on non-school days or parents can initiate these themselves. Some parents initiate medication breaks over weekends and/or during school holidays to manage or reduce the side-effects. Others lose sight of how their child behaved without medication and use a break to check for differences with and without. Teachers were keen to emphasise that medication should only be interrupted on non-school days. Here a teacher provides their view while discussing impulsive behaviour:

*“If they’re a danger to themselves and other children, then, I can’t see how that would work. Unless they were taken out of school for a while and brought back, or something like that, yeah.” (SENCO Teacher 1)*

*Consequences:* Two groups of families were identified according to the medication regimen adopted; those following the ‘school-time medication pattern’ giving medication during the school week only, not at weekends and other non-school days, and those following an ‘all-time medication pattern’ giving children the medication every day, all the time, as exemplified below:

*“There will be a number who are taking it just for school and school term, so they’re effectively having their holidays to, particularly as they have the long summer holidays, so there’s that group. Then there’s another group that’s taking it all the time.” (CAMHS 3)*

Drug holidays were viewed as being useful in managing psychological and physiological side-effects of medication, with longer breaks enabling catch-up in any suppressed growth:

*“What it can sometimes do actually, and that’s why the holiday time can be useful if there’s a growth issue, then they can do a sort of catch up, so that can be important.” (CAMHS 3)*

*“OK, no, I normally, yeah, I normally, I do that when there are eating problems, I do tell the parents, stop the medication, particularly during the summer holidays, so when they are not at school.” (CAMHS 5)*

Stopping medication at weekends allows those emotionally subdued by their drug regime to become more emotionally alert and become ‘themselves’ again:

*“Yes, yes, I mean there’s one family and she came in and she said to me, the mother said that he is actually more with it, so emotionally he is less blunted when he’s not taken the drug that day, which is very interesting. I think it must have been the weekend, on the day that the child doesn’t have the medication he is much more alert, much more active, emotionally really. On the days he has it it’s much more of a blunted, calmer child, but too calm.” (GP 8)*

Some children are returned to a lower dose after a longer break:

*“He had been on a, quite a high dose and I think they were feeling it really wasn’t very helpful […], so she has now her own system whereby she likes to stop for a period of time, which is, yes, I think two or three months, and she just struggles but she thinks it’s worth it because he can go back on a slightly lower dose.” (CAMHS 3)*

*“I find there’s a certain sort of age, often there is need for higher doses, to try and avoid getting caught out with them on a higher dose which they don’t need, so it can be useful, I think, yeah.” (CAMHS 5)*

Ultimately medication is given to children on school days in both groups and the category ‘Keeping the wheel spinning round’ encapsulates the reality that medication is mostly continued long-term once started.

**Category 3: Not playing the game anymore**

This category sums up experiences of adolescents on medication for ADHD (see also Figure 4).

*Causal conditions*: When children with ADHD become teenagers, they show a desire to stop their medication. A shift in decision making occurs and young people assume responsibility for their health. Adolescents with ADHD want to stop medication for a range of reasons, as exemplified below:

*“They themselves don’t feel right as in when they’re off the medication, and they just have, they feel they are themselves and the medication’s taking something away.” (CAMHS 3)*

*“Just become more responsible and I know we get quite a lot, a fair amount of kids drop out of treatment around 15, 16 because actually they don’t want to take it, they don’t think it’s helping.” (CAMHS 7)*

CAMHS practitioners reported different reasons for favouring trials without the medication in older children. Child age was important to CAMHS practitioners, who considered those in primary school more in need of medication than those in secondary school.

*Action/interactions*: Parents and doctors can disagree with adolescents’ decision to stop treatment and attempt to negotiate medication continuation. Parents might be unhappy to risk losing the beneficial effects of medication on academic performance and on a settled family life:

*“Secondary school is a little tricky and sometimes, if the time of the period doesn’t work with, they’re doing GCSEs, they will say, look I totally agree but we don’t want to rock the boat so I would prefer not to do this.” (CAMHS 1)*

Some CAMHS practitioners attempt to negotiate continuation of medication or at least a break from medication before stopping altogether:

*“So there’s a lot of support through that and negotiation and actually just trying to get people to recognise the importance of taking it and being consistent.” (CAMHS 1)*

*“And then if at the end that they still don’t want to take the medication at least I recommend for, OK, a period of drug holiday and see how things are going, and then I book another appointment in one or two months to review.” (CAMHS 5)*

This trial without the medication is thought to allow young people to self-assess their ability to manage without drugs.

*Consequences:* Ultimately, some adolescents want to cease treatment. Therefore, the category ‘Not playing the game anymore’ portrays the behaviour of adolescent patients who stop taking the medication perhaps against their parents’ and doctors’ advice.

**The core category: ‘Caught in the eye of the storm’**

The core category was labelled ‘Caught in the eye of the storm’ (See Figure 1). Medication eases the experience of the child, to some extent the school, and the parents from a position of difficulty to the relative safety of the eye of a metaphorical storm. The storm for some families can be present both at home and at school while for others it is mainly present at school. Some families practise drug holidays over school holidays and at weekends. For those families, drug holidays outside of school days help them remain in the relative safety of the eye of the storm, avoiding the adverse effects of medication. For others, interrupting medication anytime, even outside school, means experiencing the behavioural problems again. Concerns relating to losing the stability offered by medication by agreeing to stop treatment during the school term account for low participation in 2-week planned drug holidays if specifically suggested by doctors. In these cases, children are caught in the eye of the storm until adolescence where they become the decision-makers and can take active steps towards discontinuing medication altogether.

# DISCUSSION

Decisions relating to prescribing methylphenidate in ADHD, and when to suspend or cease medication, are influenced by a range of individuals involved in raising, providing care for and teaching children/adolescents with ADHD – as well as the patients themselves as they become able to actively participate in the decision making process. Participants in this study described many ways in which methylphenidate improved the behaviour of the child, echoing reports in a number of other studies (Cormier, 2012; Bussing & Gary, 2001; Hansen & Hansen, 2006; Brinkman, Sherman, Zmitrovich, et al., 2009); the need to increase dose to maintain improvements in the longer term was also discussed in the current study, in line with the MTA study that reported a 41% increase in the average total daily dose with long-term treatment (Molina et al., 2009). Previous studies, as well as the current investigation, highlight the reality that many children have, at one time or another, experienced reduced appetite and difficulties sleeping as well as suffered from psychological side-effects in response to methylphenidate (Hansen & Hansen, 2006). In the present study, methylphenidate side-effects were a concern for parents, GPs and teachers, and to some extent, CAMHS practitioners. The literature also reports parents’ concerns about side-effects experienced and fears of possible unknown long-term effects of ADHD medication (Berger, Dor, Nevo, et al., 2008).

While medication side-effects lead some families to stop medicating their children (Toomey, Sox, Rusinak, et al., 2012), others view the medication side-effects as manageable and acceptable, relative to the advantages offered (Cormier, 2012). Valuing the clear benefits of medication in stabilizing challenging behaviours is used to justify the decision to continue with medication (Cormier, 2012; Charach, Skyba, Cook, et al., 2006). Such continuation was argued by Baldwin to be “a psychological consequence from an apparent improvement in child behavior after starting the medication; when troublesome behavior disappear it is tempting to maintain the status quo” (Baldwin, 2000). Thus, adherence rates to ADHD medication can extend to upwards of 5 years even while experiencing side effects (Charach, Ickowicz, & Schachar, 2004). Adherence has been reported to be due to the benefits of medication on the child’s academic achievements (Hansen & Hansen, 2006; Baldwin, 2000). Similarly, in the current study, academic improvements were considered an important reason for parents to keep their children on methylphenidate in the face of side-effects. This is despite the MTA study recommendations that decisions about starting, continuing and stopping medication should not be based on untested assumptions about continuing benefit, with trial discontinuations vital for checking ongoing need and benefit (Molina, et al., 2009).

Teachers in our study described referring some children for a medical diagnosis of ADHD, and recognized the role of medication in making children calmer and more focused in the classroom. As a result of this, teachers were reluctant to support drug holidays during school days. Research shows that teachers are among the first to describe ADHD in children, accounting for > 40% of referrals (Sax & Kautz, 2003). Teachers are also thought to have inadequate knowledge and understanding of ADHD and its treatment (Akram, Thomson, Boyter, et al., 2009), and to hold positive views about stimulant medication (Snider, Busch, & Arrowood, 2003). Behavioural conformity is a dominant theme in the classroom, and teachers’ value student compliance with codes of behaviour (Tavares, 1996). Planned drug holidays from methylphenidate were mostly preferred on non-school days. Some participants in the current study used longer drug holidays as a means to return children to prior lower doses of methylphenidate.

A well-organized home life that provides a good structure during the day has been suggested to reduce behavioural issues in children and adolescents with ADHD when they are not on medication. There is arguably a need for development of robust recommendations on alternative behavioural interventions that might help manage symptoms of ADHD experienced during a drug holiday. These could include the interventions listed in NICE guidelines, namely cognitive-behavioural therapy, behavioural therapy, self-instructional training, social skills training, parenting-training/education programmes and family therapy (NICE, 2008).

Complete cessation of medication in ADHD was not discussed in the context of younger primary-school-aged children, but when children become teenagers, they were reported to choose to stop taking medication themselves for multiple reasons. A cohort study in the UK reported a sharp decrease in prescribing medication for ADHD between ages 16 and 17 years (McCarthy, Asherson, Coghill, et al., 2009). Different factors account for non-adherence in adolescents with ADHD such as complex medical regimen, presence of co-morbidity, lack of external supervision, and side-effects experienced (Charach & Gajaria, 2008). Adherence to ADHD medication in adolescents is reported to range from 13% to 64%, depending on study methodology and follow up period (Adler, & Nierenberg, 2010). Wong et al. (2009) found the reported fall in prescribing to be greater than the associated decrease in symptoms in those aged 15 to 21, raising the possibility that treatment is prematurely discontinued in some cases. While CAMHS practitioners interviewed in the current study continued to acknowledge the necessity for medication in adolescents, they suggested planned drug holidays in this age group could be a useful tool to test the impact of medication cessation in a controlled setting, which might address the issue raised in the Wong et al study (2009).

The present study provides new and detailed information on the experience of drug holidays from ADHD medication; however it is important to note that the findings were drawn from parents, teachers, and practitioners and not the children themselves. Given the central position of the child in the decision to continue or suspend ADHD medication, there is a clear need for further qualitative research on the patients’ perspective. In addition, the parents interviewed during the course of this study were mothers of children and adolescents actively taking medication, so their views may not reflect those of parents who have stopped medication giving completely. Equally, it will be important in the future to investigate the opinions held by fathers to provide additional insight into the parental view of drug holidays from methylphenidate in ADHD.

# CONCLUSION

This is the first study to examine in depth the views and experiences of planned drug holidays from methylphenidate in ADHD. The model presented herein can be used as a framework to explain factors influencing decisions to continue, interrupt, or discontinue medication. Treatment with methylphenidate leads to improvements at home and at school, which can prolong usage with dose increases even when experiencing side-effects. Short breaks from medication at weekends, and longer ones during school holidays, represent a compromise by the patient and parents, with a suggestion that longer breaks allow lower doses to be prescribed. The findings presented here have the potential to aid practitioners and policy makers to routinely recommend and support shorter weekend breaks during the school term where workable, with longer drug holidays in the summer to facilitate growth catch up. For older children, planned drug holidays could address premature cessation of treatment by enabling assessment of the repercussions under medical and parental supervision.

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# Conflicts of interest:

The author(s) have declared that they have no competing or potential conflicts of interest.

# Contributorships:

The authors made substantial contribution to design (KI, PD), data acquisition (KI, CV), analysis (KI), drafting the paper (KI), revising paper for important intellectual content (PD, CV), approval of final version (KI, PD, CV) and agree to be accountable for all aspects of the work. KI had full access to all the data in the study, and takes responsibility for the integrity of the data and the accuracy of the data analysis. The authors extend their sincere thanks to Dr Cathy Tissot who helped recruit SENCO teachers, all the participants who were interviewed, and Professor Gary Stephens and Dr Patrick Lewis who edited the final manuscript.

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