



“It's safer to ...” parent consulting and clinician antibiotic prescribing decisions for children with respiratory tract infections: An analysis across four qualitative studies



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ABSTRACT

This paper reports a cross-study analysis of four studies, aiming to understand the drivers of parental consulting and clinician prescribing behaviour when children under 12 years consult primary care with acute respiratory tract infections (RTI). Qualitative data were obtained from three primary studies and one systematic review. Purposeful samples were obtained for (i) a focus group study of parents' information needs and help seeking; (ii) an interview study of parents' experiences of primary health care (60 parents in total); and (iii) an interview study of clinicians' experiences of RTI consultations for children (28 clinicians). The systematic review synthesised parent and clinician views of prescribing for children with acute illness. Reoccurring themes and common patterns across the whole data set were noted. Through an iterative approach involving re-examination of the primary data, translation of common themes across all the studies and re-organisation of these themes into conceptual groups, four overarching themes were identified. These were: the perceived vulnerability of children; seeking safety in the face of uncertainty; seeking safety from social disapproval; and experience and perception of safety. The social construction of children as vulnerable and normative beliefs about the roles of parents and clinicians were reflected in parents' and clinicians' beliefs and decision making when a child had an RTI. Consulting and prescribing antibiotics were both perceived as the safer course of action. Therefore perception of a threat or uncertainty about that threat tended to lead to parental consulting and clinician antibiotic prescribing. Clinician and parent experience could influence the perception of safety in either direction, depending on whether previous action had resulted in perceived increases or decreases in safety. Future interventions aimed at reducing unnecessary consulting or antibiotic prescribing need to consider how to make the desired action fit with social norms and feel safer for parents and clinicians. Crown Copyright © 2015 Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Acute respiratory tract infections (RTI) are common in children and the main cause of primary health care service use by parents in the UK (Hay et al., 2005). Although mainly self-limiting, they are a significant cause of concern for parents because of impacts on the child and family, and concerns about serious illness (Cornford et al., 1993; Kai, 1996a,b). Parents' decision to consult is influenced by perceived threat severity (Wyke et al., 1990; Cornford et al., 1993;

Kai, 1996a; Neill, 2000; Ingram et al., 2013), the perceived benefits of consulting, and an expectation of assessment, information, advice or treatment (Kai, 1996a; Neill, 2000; Ingram et al., 2013). Parents are uncertain how to assess illness severity (Kai, 1996a; Francis et al., 2008; Neill, 2010; Ingram et al., 2013) and when to consult (Neill and Carter, 2012; Ingram et al., 2013).

Inappropriate prescribing of antibiotics is now at the top of the public health agenda (Davies, 2013) and a serious problem in the paediatric population (Finkelstein et al., 2000). Primary Care practitioners are responsible for 80% of all antibiotic prescriptions in the UK, about half of which are for RTI (SMAC, 1998). Despite evidence of limited or marginal effectiveness (Butler et al., 2009) antibiotics continue to be widely prescribed, leading to bacterial resistance to antibiotics (Costelloe et al., 2010). One of the strongest

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predictors of antibiotic prescribing is perceived clinical need (Little et al., 2004; Fischer et al., 2005), but antibiotic prescribing is also influenced by patient/parent pressure for antibiotics as perceived by clinicians (Mangione-Smith et al., 1999; Little et al., 2004), perceived need (or lack of need) to reduce prescription of antibiotics (Tonkin-Crine et al., 2011a), clinical uncertainty (Tonkin-Crine et al., 2011a; Whaley et al., 2013), and the desire to maintain a good relationship with the patient (or parent) (Petursson, 2005; Tonkin-Crine et al., 2011a).

This paper draws on the results of qualitative research conducted as part of the NIHR funded ‘TARGET’ programme for applied research, which was designed to understand and improve the clinical response to children presenting to primary care with RTIs (Redmond et al., 2013). It explores some of the drivers for parental consulting and clinician antibiotic prescribing for children with RTIs.

2. Theoretical background

There are multiple models for understanding health behaviour, but no clear basis for selecting one over another (Michie et al., 2005). Comparisons reveal considerable commonality between the theoretical constructs of different theories (Michie et al., 2005) and similar predictive power (Redding et al., 2000). Previous studies investigating drivers of consulting and prescribing have tended to focus on individual parent beliefs about the health threat (Wyke et al., 1990; Cornford et al., 1993; Kai, 1996b), consultation benefits (Kai, 1996a; Neill, 2010) or clinician beliefs about clinical or social need for antibiotics (Little et al., 2004; Tonkin-Crine et al., 2011a). However, very little research into consulting and prescribing for acute childhood illness has explicitly used theoretical models or constructs to interpret observations. This paper seeks to address this gap in the literature, linking the abstract concepts (e.g. social norms) to the concrete experiences and beliefs (e.g. children’s vulnerability).

2.1. Parental consulting and the health belief model

In previous work (Ingram et al., 2013) we found that the Health Belief Model (Rosenstock et al., 1994) was useful for understanding the parent beliefs which influenced their decision to consult. In particular, the constructs of perceived severity of the illness, perceived susceptibility to the illness, self-efficacy in relation to home management of the illness, perceived benefits of consulting, and cues to action (i.e. to consult) (Rosenstock, 1974; Rosenstock et al., 1988; Bandura, 1998). Parents place a lot of emphasis on perceived severity in accounts of their consulting decisions (Wyke et al., 1990; Cornford et al., 1993; Kai, 1996b; Neill, 2000; Ingram et al., 2013) and some children (younger or with underlying health problems) are identified as more susceptible (Ingram et al., 2013). Parental self-efficacy (their perceived confidence in managing an acute illness at home) tended to decrease as perceived severity increased (Kai, 1996b; Ingram et al., 2013) but was increased by experience of self-limiting acute illness (Ingram et al., 2013). The primary perceived benefit of consulting was access to a professional medical evaluation that (parents believe) will identify and remove any health threat through appropriate treatment (Ingram et al., 2013; Cabral et al., 2014). Cues to action (in this case to consult) could include particular symptoms (e.g. fever), sanctioning or pressure from a social network or advice from official sources (e.g. NHS direct) (Wyke et al., 1990; Cornford et al., 1993; Ingram et al., 2013).

2.2. Parental consulting, normative beliefs and subjective norms

Just as social constructions of gender roles influence health behaviours (Courtenay, 2000; Verdonk et al., 2010), the social

construction of childhood and parenting may influence parent health behaviours when caring for their children. Children are viewed as an inherently vulnerable group (Frankenberg et al., 2000) and the authority to define, manage and monitor health risk is increasingly seen as the responsibility of professional medical-scientific authorities (Faircloth, 2010; Knaak, 2010), thus placing parents in a more powerless role (Macvarish, 2010). Parents who do not adhere to ‘best’ parenting practices are represented as a risk to their children (Faircloth, 2010; Lee et al., 2010). Thus parents making decisions about their child’s health take into account not only the health risks to their child but also the risk of appearing to others to be a bad parent (Casiday, 2007). It’s likely that normative beliefs do influence parent help seeking behaviour when their child is unwell but as yet this is little understood.

2.3. Clinician prescribing and normative beliefs and subjective norms

The social construction of children as vulnerable may also influence clinicians’ subjective norms when making decisions about whether or not to prescribe antibiotics for an acutely unwell child. The Theory of Planned Behaviour has been used to predict clinician prescribing behaviour for acutely unwell adults (Walker et al., 2001; Hrisos et al., 2008; Eccles et al., 2012; Yardley et al., 2013) but little attention has been given to what influences the normative beliefs that engender the relevant subjective norms. In hospital settings, clinician prescribing adheres to perceived prescribing norms, which are oriented towards immediate risk reduction and deference to the medical hierarchy within that setting (Lewis and Tully, 2009; Broom et al., 2014). Similarly in a primary care setting, GPs place great weight on professional norms and value interventions which give them insight into the antibiotic prescribing behaviour of their peers (Tonkin-Crine et al., 2011b). When dealing with a group which is perceived to be vulnerable, clinicians may feel extra pressure to prescribe antibiotics, but there has been little work looking at how normative beliefs in relation to specific groups may influence prescribing behaviour.

In this paper we present new evidence of how the social construction of children as vulnerable influences consulting and prescribing decisions for children.

3. Study methods

Analysis of qualitative data from three primary studies and one systematic review conducted for the ‘TARGET’ Programme are presented. These were originally conceived as linked but independent pieces of research to inform the development of an intervention. However, as analyses progressed, patterns were observed suggesting unifying themes. The process was facilitated by the fact that the studies were conducted in parallel with overlapping research teams: with CC and JH working on both primary studies and the systematic review. An integrated analysis, drawing on the whole programme qualitative data, was developed in parallel to individual analyses. This study was approved by the NHS Ethics Committee South West 4 (ref. 10/H0102/55). All participants gave informed consent to their participation in this research and to reporting of anonymised quotes in publications.

The methods and sample characteristics of the sixty parents contributing to individual studies have been published elsewhere (Horwood et al., 2012; Ingram et al., 2013; Cabral et al., 2014; Lucas et al., 2015). Three primary studies were conducted in an urban and rural area in South-west England during 2010 and 2011. The focus groups took place in private rooms in community locations where parents already met, most interviews took place in participants’

homes. A purposeful sample of parents from a range of neighbourhood socio-economic situations (SES) and with different numbers and ages of children was obtained, although only 2 fathers participated (Table 1). Focus groups (facilitated by CC and either JH, JI or PL) were used to investigate the process of parents' decisions to consult for RTI (Ingram et al., 2013) and interviews used to investigate parents' experiences and views of consulting for RTI (Cabral et al., 2014). An interview study with a purposeful sample of 28 general practitioners (GP) and nurse practitioners (NP) drawn from the same areas as the parents and with varying durations of experience in primary health care (PHC) (Table 2) investigated clinician experience and practice in consultations for children with RTI (Horwood et al., 2012). Topic guides are given in Table 3. All focus group and interview data were transcribed in full and imported into NVivo9 for analysis. For the focus group and interview studies, data collection and analysis of the primary data were conducted in parallel until data saturation was reached (Sandelowski, 1995) and separate thematic analyses (Braun and Clarke, 2006) using an inductive approach (Frith and Gleeson, 2004) were conducted. A systematic review of 15 qualitative studies reported the views of 101 parents and 207 clinicians in relation to prescribing for acute childhood infections (Lucas et al., 2015). Standard methods for qualitative reviews were followed (Higgins and Green, 2011) and synthesis followed a meta-ethnographic approach (Noblit and Hare, 1988).

To perform our cross study analysis, the researchers met regularly and discussed how the themes and constructs from the different studies related to each other. We identified patterns of recurring themes and constructs across the original studies and reorganised these into related groups using an interpretive approach (Braun and Clarke, 2006). We examined the data for contradictory themes but did not find any. We developed new conceptual themes (or third order constructs) through the process of reciprocal translation (Noblit and Hare, 1988) by examining key concepts and translating between studies to derive concepts which encompassed more than those of the original studies (Campbell et al., 2003). Together these provide the theoretical framework for understanding influences on consulting and prescribing decisions.

4. Findings

Four over-arching conceptual themes were identified from across the three primary studies, representing constructs shared between parents and clinicians: perceived vulnerability of children; seeking safety in the face of uncertainty; seeking safety from social disapproval and experience and perception of safety. The 3rd order constructs identified by the systematic review are given in Table 4.

4.1. Perceived vulnerability of children

Clinicians and parents both described children in general as being more vulnerable to health threats and having particular need of protection.

"in terms of with children you can't be too careful really."
(Mother#18, high SES, 2 children: 7 & 8 years)

"I think, particularly with children, you have to be a bit more careful ... Because they [children] can change quickly and they can't tell you the same and they are more difficult to assess." (GP#4, 3 months in PHC, low SES practice)

Parents also perceived individual children as being particularly vulnerable, sometimes because of a particular health issue (e.g. asthma) but also where a child was perceived to be susceptible to infections.

"It's more with [son's name], 'cos where he suffers a lot with sort of like um throat infection and ear infection, and he comes down quite ill with that, so he gets quite chesty." (Mother #8, low SES, 2 children: 3 & 5 years)

Both clinicians and parents described how their perception of children as especially vulnerable influenced their decision making. This idea of vulnerability was used to explain quicker or more frequent consulting and sometimes a more liberal approach to antibiotic prescribing.

Table 1
Parent sample demographics.

| | | Total (n = 60) |
|---|----------------------|----------------|
| Gender | Female | 58 |
| | Male | 2 |
| Socio-Economic Status (SES) (of parent neighbourhood) | 1 (Most deprived) | 16 |
| | 2 | 11 |
| | 3 | 13 |
| | 4 | 6 |
| | 5 (Most affluent) | 14 |
| | | |
| Education | Left School <16yrs | 4 |
| | Schooling to 16yrs | 17 |
| | Schooling to 18yrs | 12 |
| | Graduate degree | 10 |
| Age parent | Post graduate degree | 17 |
| | <25 yrs | 8 |
| | 25–34 yrs | 22 |
| | 35–44 yrs | 19 |
| | 45+ yrs | 11 |
| Number of children | 1 | 25 |
| | 2 | 29 |
| | 3 | 6 |
| Age of youngest child | >2 yrs | 21 |
| | 2–4 | 16 |
| | >4 | 23 |
| Frequency of consultations with GP for youngest child [self-reported] | 1–3 per yr | 28 |
| | 4–6 per yr | 15 |
| | 7–12 per yr | 9 |
| | >12 per yr | 8 |

Table 2
Clinician sample demographics.

| | Number | GPs | Nurses | Total |
|--|-------------------|-----|--------|-------|
| | | 22 | 6 | 28 |
| SES of neighbourhood served by GP practice | 1 (Most deprived) | 6 | 2 | 8 |
| | 2 | 8 | 3 | 11 |
| | 3 | 0 | 0 | 0 |
| | 4 | 4 | 1 | 5 |
| | 5 (Most affluent) | 4 | 0 | 4 |
| Gender | Female | 5 | 0 | 5 |
| | Male | 17 | 6 | 23 |
| Year of experience as clinician | <5 years | 5 | 2 | 7 |
| | 5–9 years | 6 | 3 | 9 |
| | 10+ years | 11 | 1 | 12 |
| Experience treating children [self-reported] | Less | 10 | 1 | 11 |
| | More | 12 | 5 | 17 |

Table 3
Outline topic guides.

| Parent focus group guide | Parent interview guide | Clinician interview guide |
|--|--|---|
| <ul style="list-style-type: none"> • Pre-consultation information and seeking • Triggers and barriers to consulting • Beliefs about RTIs • Information needs | <ul style="list-style-type: none"> • Beliefs about susceptibility and severity of RTI • Beliefs about benefits of consulting • Trigger to consultation • Consultation experience • Information sought during consultation • Parent self-efficacy in caring for their child post consultation | <ul style="list-style-type: none"> • Usual practice in managing child with acute cough • Influences on prescribing decision • Communication practices • Clinician needs |

Table 4
Relationship between conceptual themes and 1st, 2nd and 3rd order constructs identified by meta-ethnographic synthesis (Lucas et al., 2015).

| Over-arching theme | 3rd Order constructs: meta-themes derived from synthesis | 2nd Order constructs: selected themes from reviewed papers | 1st Order constructs: examples of primary data |
|---|--|--|--|
| 1 Seeking safety in the face of uncertainty | Prescription triggers: just in case | Non-treatment is too risky | Doctors justifying over-prescription of antibiotics by risks of complications in children if not prescribed (p.11) (Pradier et al., 2003) |
| 2 Seeking safety in the face of uncertainty | Prescription triggers: clinically indicated | Both parents and clinicians approved of antibiotics when they felt they would improve the current illness, but for clinicians this included where a prescription for their child would reassure an anxious parent, or where they felt parents might be less competent. | I think a prescription costing three or four quid is far less stressful than an anxious angry mother. S050 Male GP Sheffield (Rose et al., 2006) |
| 3 Seeking safety from social disapproval | Consultations needs | Pressure from day care providers for medical treatment of URTIs | "I feel pressured by the day care teacher to take my child to the doctor to prove I'm a responsible parent" (parent) [p669:11] (Barden et al., 1998) |

"children aren't able to accurately assess and articulate whether their symptoms are getting worse or not. ... they can't make that assessment of themselves. ... if [the doctor is] unsure either way [the child] should have them. But with an adult possibly not because, you know, you can kind of reassess it more accurately. With children I don't think you can take the risk." (Mother #18, high SES, 2 children: 7 & 8 years)

"I think it's fairly legitimate to weigh up the risks and benefits really in terms of understanding a course of antibiotics under those circumstances could prevent that child from becoming worse in some circumstances." (GP#20, 9 years in PHC, high SES practice)

4.2. Seeking safety in the face of uncertainty

Parents often take their children to visit the doctor because of uncertainty about their child's illness rather than because they believe their child has a definite health problem (see Table 4). Importantly, parents believe that a clinical judgement is necessary

to identify serious health threats and distinguish treatable illnesses. A common belief is that coughs can indicate a 'chest infection' (which needs treatment) and that the presence of a 'chest infection' can only be determined by a clinician. Thus by consulting, a parent believes they are 'ruling out' a potential health threat.

"You know, it's just I think you just always like to rule it out, in a way, I suppose, that it's not some infection that they're not having treated" (Mother #15, high SES, 2 children: 2 & 5 years)

Similarly parents perceived a need for a clinical assessment of related, but different, health concerns related to RTI. For example, to assess whether symptoms in themselves needed treatment, or whether recurrent infection indicated an underlying and serious problem with the child's immune system.

"I didn't mind that they had a cough really. I minded that they weren't able to keep any food down for so many days, and um didn't really get any kind of satisfaction around it at all" (Mother #2, high SES, 2 year old twins)

"I'm almost going in to show the doctors how often she is ill. ... I'm wanting to go in and say, "Look, she's ill again. Is there anything we can do? Can you give me any advice on how to increase her immune system?" (Mother #16, high SES, 2 children: 4 & 6 years)

The need to eliminate the risk of a potential health threat was felt so strongly by parents that even where they knew there was a very low risk of their child having a serious, treatable infection, or an underlying health problem, this did not necessarily affect their intention to consult.

"I wouldn't be thinking, 'Oh statistically she's going to be OK,' because there is one, [she] could be the one. (...) it still wouldn't affect whether I got her checked up or not" (Father #20, low SES, 2 children: 1 & 3 years) (when presented with the information that only 1% of children consulting with cough will have a serious infection)

"You know, you feel like do you take that risk with your – with your pride and joy, you know? (...) No." (Mother #6, low SES, 2 children: 2 & 11 years)

This was because many parents, particularly those who were less experienced, lacked confidence in differentiating serious and/or treatable infections from self-limiting ones but most believed that clinicians could differentiate.

"I find it quite hard to tell from him coughing. ... I can't really tell from listening anyway whether it's a chest infection or not. (Mother #1, high SES, 1 child: 11 months)

"didn't really know what it was, whether it was a cough that was being affected by asthma starting or, I don't know, I don't know what the list of things it could be ... So needing someone's opinion who knows about everything [laughs] imaginable, which is a doctor ... I'd expect a doctor to know, to have the best knowledge of different things, and more up to date knowledge" (Father #20, low SES, 2 children: 1 & 3 years)

Parents often described the decision to consult in terms of being safe; they were doing what they could to reduce, manage, or eliminate risk.

"I think it's safer to go and see the doctor." (Mother #21, high SES, 1 child: 1 year)

"I think, to be quite honest, the safest bet is to talk to a proper doctor." (Mother #25, low SES, 3 children: 6, 12 & 15 years)

Clinicians were aware that most children with a cough present a low risk of poor outcome, but they are also aware of the clinical uncertainty surrounding identification of high risk cases and described 'missing something in a child' as one of their 'biggest fears'. This fear led clinicians to encourage re-consulting and to prescribe antibiotics (Table 4) when they may not have been needed.

"I think all GPs, when it comes to children, are more sort of ... encourage re-consultation. ... Because, you know, it's your biggest fear of missing something in a child" (GP #5, 3 years in PHC, low SES practice)

"So maybe I prescribe antibiotics a little bit more than I need to because I'm not good enough at knowing [...] when I hear abnormal things in a child's chest, whether I should do something active about it at that point." (GP #1, 20 years in PHC, low SES practice)

"Oh yes, yes. I think, yes, I mean obviously there is uncertainty. I mean is it viral, is it bacterial? You don't know. But you give them antibiotics, because I think you have to be quite brave if you've got localised chest sounds and don't give them antibiotic." (GP #10, 20 years in PHC, low SES practice)

Repeated consultations for the same episode also increased clinician anxiety that they might be 'missing something in a child' and made it more likely they would prescribe. Clinicians prescribed antibiotics in order to reassure anxious parents (Table 4) and to relieve their own anxiety.

"And when someone re-presents, you know, as a GP your anxiety goes up a little bit that obviously something wasn't right the first time and they've come back. ... you're going to have a lower threshold for doing something if someone presents repeatedly" (GP #14, 4 months in PHC, high SES practice)

Clinicians also felt uncertainty in relation to the ability of some parents to manage their child's illness (see Table 4). According to how certain they were that parents would be able to cope with their sick child, they judged how safe it was *not* to prescribe an antibiotic. If the clinician was in doubt about the ability of the parent to recognise a worsening illness and re-consult, then the clinician might prescribe "just in case" (Table 4). Here clinicians were constructing some parents as inadequate 'risk managers' for their child (Lee et al., 2010) and themselves as the medical authority as having primary responsibility for managing the risk to the child.

"if I don't trust the mum to come back because she seems not very with it, but I'm not worried enough to admit the kid, I might be more inclined to antibiotics. [...] Just in case they don't come back, because I can't safety net properly with them." (GP #18, 8 years in PHC, high SES practice)

4.3. Seeking safety from social disapproval

Parents and clinicians both avoided actions they felt would be judged to be socially or professionally unacceptable (Table 4). Parents described facing a dilemma when deciding whether or not to consult for an unwell child, with subjective norms that parents ought to consult for a child (Table 4) in conflict with subjective norms that patients shouldn't consult for things that might be self-limiting. The latter leading parents to fear being seen as wasting the doctor's time.

"And you sort of worry about whether you should go to the doctor's, don't want to waste their time, so go to the pharmacist. And the pharmacist almost immediately says, "Take her to the doctor's." And then the doctor says, "No there's nothing wrong." (Mother #23, high SES, 1 child: 10 years)

"And you hear on the telly all the time, don't you, "Oh doctors ain't got no money 'cos people are wasting their time for cold appointments." ... It does make you reluctant. And you think well I don't want to waste their time. I don't want them to be talking about me wasting their time, you know." (Mother #06, low SES, 2 children: 2 & 11 years)

"he does make me feel like I'm wasting his time and I shouldn't be there" (Mother #13, low SES, 1 child: 1 year)

For clinicians, the possibility of "missing something in a child"

was felt to be a potential threat to their professional expertise or standing. They anticipated being held to account and feared legal action.

“if they were, as a result of that not taking it [antibiotics], ... to become more unwell, it's very difficult to justify having held it back.” (GP #20, 9 years in PHC, high SES practice)

“if there was a problem, and say that child became really acutely unwell, or at the worst, you know, died, um and things went to a litigation type thing, then I would have to be able to stand up and say that I gave the best advice that I did at the time.” (NP #21, 7 years in PHC, low SES practice)

In contrast, an unnecessary antibiotic prescription was not really perceived as a threat to professional judgement or standing, partly because it is not possible to know or provide evidence of when an antibiotic prescription is or is not necessary. Clinicians also believed that individual actions contributed little to the problem of antibiotic resistance.

The social risks presented a greater dilemma to parents than to clinicians. Parents described an internal tussle between fear of being seen as an irresponsible parent for not consulting a doctor and the fear of being judged for wasting the clinician's time. In contrast, clinicians described the large risk that missing a seriously ill child presented to their professional role and the associated possibility of legal consequences as being a significant concern, which far outweighed the small risk of being seen to have given an unnecessary antibiotic prescription.

4.4. Experience and the perception of safety

Different experiences of RTI in their child resulted in different perceptions of safety around consulting and not consulting. Some parents, commonly those with older children (aged 5–12 years) and those from more affluent areas, described developing greater self-efficacy in relation to home management with repeated experiences of the illness as self-limiting. They felt very anxious and uncertain the first few times their child had a cough and often consulted, but these feelings reduced with repeated experiences of coughs resolving without treatment. These parents came to view common RTI symptoms as not constituting a health threat unless there were other concerning symptoms or underlying conditions and therefore felt safe to ignore them. Some of these parents were surprised to learn that a serious infection was even a possibility.

“Unless they can produce a temperature, a high temperature. I would go away and ignore it completely.” (Mother 17, mid-SES, 2 children: 11 & 12 years)

“I wouldn't expect it to be a normal healthy child getting a cough leading to pneumonia” (Mother #2, high SES, 2 year old twins)

In contrast parents who had an experience of an RTI which had been treated with antibiotics or where the illness had been very severe perceived a much greater health threat. Experiences of severe illness were more common among (but not restricted to) parents living in more deprived areas. Past antibiotic treatment could contribute to a belief that coughs needed treatment, and that antibiotic treatment could reduce or prevent unnecessary suffering.

“I rushed him down to the doctor's, and apparently both his tonsils were – and he was on antibiotics straight away. I felt dreadful ... and I said, “How did I miss that?” ... And I think from then, since then I've been, “I can't be having him suffer like that.” (Mother #18, high SES, 2 children: 2 & 4 years)

A small number of parents had very distressing experiences of unplanned hospital admissions for children with breathing difficulties, and one parent had lost a child to sudden infant death in which a RTI was judged to be a contributing factor. These parents saw cough as a potentially very serious health threat. Both the belief that treatment was needed and that coughs were potentially very serious threats to health influenced parents' decision about when and where to consult. They also contributed to a greater expectation of antibiotics, although most parents would defer the treatment decision to the clinician.

“Yeah but I think because of all the problems that my son's suffering now is from a cold, I wouldn't trust anything, as soon as he got a cough I'd rather go to A&E ... because I know what state he was in last time.” [son was rushed to hospital in respiratory distress] (Mother #35, low SES, 2 children: 5 months & 5 years)

“So I kind of thought, “Well actually if you whack him some antibiotics maybe it will stop it getting worse.” (Mother #13, low SES, 1 child: 1 year)

Different parental experiences resulted in a range of different perceptions of the threat posed by a RTI. This included parents who viewed it as potentially life threatening, parents who viewed it as carrying a risk of unnecessary suffering and those who viewed it as posing no risk at all (and therefore not subject to the social norm that parents ought to consult when there is a health risk).

Clinicians also described how experience influenced their self-efficacy in management of RTI in children, but in their case it was experience of seeing very sick children which increased their confidence in making decisions that they felt were safe. Experiences of seeing children with RTI in hospital were particularly valued because clinicians believed they had better knowledge of the signs of a potentially severe RTI and would be less likely to “miss something in a child” (though they might still prescribe just in case). Conversely, experience of only self-limiting illness meant less confidence in their ability to rule out a more severe illness.

“When I first started here I was absolutely scared to death to see any children. (I needed) a lot of support, a lot of support. But as you sort of, you know, get pattern recognition and you begin to be – feel more competent than that really helps.” (NP #23, 2 years in PHC, low SES practice)

“I don't examine many chests belonging to poorly kids, and probably if I listened to more kids with good going pneumonia and that sort of thing, I'd be better at – I think I now, I can rule them in, I can think this is abnormal and I'm not happy, but maybe I'm not so good at um saying, “This is not quite right, but it's not too bad, and we probably don't need to prescribe for it.” (GP #01, 20 years in PHC, low SES practice)

5. Discussion

These findings help us to understand the high rates of consulting and antibiotic prescribing for children with RTIs as driven by fears for and priority afforded to children's safety. These reflect social norms where children are constructed as vulnerable (Furedi, 2001, 2007) and therefore the role of adults is to protect them from risks of harm (Scott et al., 1998; Piper et al., 2006; Lupton, 2011). Models of risk or threat perception often focus on individual cognitive and perceptual differences (Rosenstock et al., 1994; Slovic, 2000). Cultural theories of risk take into account the influence of

cultural and societal values on the prioritisation of competing risks (Douglas and Wildavsky, 1982; Sjöberg, 2000). In this study we see a focus on the risk of harm to an individual child, no matter how small, over the risk to society of antimicrobial resistance. This research reveals the complex relationship between threat perception, social norms and competing social risks for both parents and clinicians, and how these influence consulting and antibiotic prescribing.

The conception of children as vulnerable has influenced ideas about appropriate parenting (Scott et al., 1998; Frankenberg et al., 2000; Furedi, 2001; Lee et al., 2010), such that parents' prime responsibility is to protect from or avoid risk. This role is particularly felt by women, and central to their sense of being a 'good mother' (Lupton, 2011). We have shown that behaviours perceived as protecting a child from a health threat are one way a mother can fulfil this role. Much less attention has been paid to the influence of the social construction of children as vulnerable on the social norms and behaviours of professionals who work with children (Piper et al., 2006). Here we have shown that these same normative beliefs influence clinician prescribing behaviour towards children.

These findings highlight some differences between motivations for consulting for children compared with adults with RTIs. Just over half of adults with an RTI consulting their GP reported they had a definite expectation of antibiotic treatment (McNulty et al., 2013). In contrast, only a minority of parents report consulting with a definite expectation of antibiotic treatment; most are simply seeking a medical evaluation (Ingram et al., 2013; Lucas et al., 2015), and deferring the treatment decision to the clinician (Cabral et al., 2014). Normative beliefs lead parents to feel that in order to be deemed an adequate 'risk manager' (Lee et al., 2010) they must act to reduce a perceived threat. In the context of managing child illness this meant deferring to the relevant medical professional seen as having the authority to manage risk (Faircloth, 2010; Knaak, 2010). Here we see that high parental consulting rates for (from a clinical viewpoint) minor illness is not due to a lack of understanding of the illness but to the enactment of the role of a 'good' parent, conforming to social norms of 'good parenting' behaviour.

Parents' experience of RTI affected their perception of the threat, which contributed to differences in consulting behaviours. Lay perceptions of health risks are influenced by experiences of frequency and severity of health problems (Gifford, 1986). Perceived severity was a key element of parent's conceptualisation of the health threat, and this was informed by their experiences. Parents who had only experienced minor self-limiting RTIs developed a perception that the threat posed by RTI was negligible and consequently reported rarely consulting for RTI. In contrast parents who had lived through very severe episodes of RTI perceived a higher threat, felt lower self-efficacy in relation to managing the illness and reported consulting for every future episode "just in case". The incidence of severe RTI (and associated hospitalisations and fatalities) is inversely related to socio-economic situation (Majeed et al., 2000; Purdy et al., 2011). However, parental concerns and triggers for consulting are very similar across socio-economic groups (Ingram et al., 2013). The difference in experience and consequences for perceived threat may partly explain higher rates of consulting observed among more deprived communities (Beale et al., 2010). In addition, the socially accepted norm of consulting if there is any threat to the child may be felt more strongly by parents from more deprived communities who feel at greater risk of censure for inadequate parenting.

Interventions which have successfully reduced antibiotic prescribing have focussed on communication training and in particular elicitation of concerns and expectations in addition to either the use of C-reactive protein (CRP) near patient tests (Cals et al., 2009; Little et al., 2013) or processes to encourage awareness of individual

prescribing and local resistance rates (Butler et al., 2012). Communication skills may act to reduce misunderstanding or conflict within the consultation and CRP tests to reduce uncertainty, both of which may make clinicians feel safer to not prescribe. The intervention which increased clinician awareness of personal prescribing and the dangers of over-prescription may have increased the perceived prescribing threat, making not prescribing feel safer, and led clinicians to give greater attention to the threat of anti-microbial resistance.

5.1. Strengths and limitations

This study drew on three separate qualitative studies and one systematic review of qualitative evidence conducted and linked within a programme of research. The concurrent timelines and overlap between research teams, led to the development of an understanding of the influences on consulting and prescribing decisions for children which would have been more difficult to achieve had these pieces of research been conducted separately or in sequence. It also enabled us to consider multiple perspectives including both parents and clinicians (rarely done and usually only in limited contexts) (Barden et al., 1998; Pradier et al., 2003; Larson et al., 2006) and parents from a wide range of SES whereas most previous studies have focussed on more deprived areas (Kai, 1996a,b; Francis et al., 2008).

Our study draws on in-depth qualitative research with parents and clinicians and caution should be exercised in generalising findings. Although the primary study samples encompassed a wide range of SES, they were drawn from a limited geographical area (an urban area and neighbouring rural area) and most parents were mothers of white British ethnicity, so it is possible that the views and experiences of parents from other locations or ethnicities or fathers would differ. Similar limitations on generalisability apply to the constructs identified by the systematic review. Neither the primary studies nor those identified by the review investigated the views of children themselves and therefore cannot comment on their experiences of the consulting or prescribing decisions.

5.2. Implications for practice

Our research suggests that interventions to reduce unnecessary prescribing for children with RTIs should increase clinicians' (and to a lesser extent parents') confidence in the safety of not prescribing, allowing them to modify their behaviour while still conforming to the social norm of ensuring child safety, and increase clinicians focus on the risks of over-prescribing. Similarly, interventions to reduce consulting for RTIs should increase parents' confidence in their ability to distinguish self-limiting illness from one which might need treatment. Moreover, our research suggests that interventions that focus on increasing parent knowledge of the low probability of severe illness are unlikely to have much impact on consulting or prescribing rates. Interventions are more likely to be effective if they reduce uncertainty around when a consultation or an antibiotic prescription is needed and increase clinician and parent knowledge of which symptoms and signs indicate severity, and perhaps more importantly, which are normal and do not indicate vulnerability in a healthy child.

The intervention developed within the 'TARGET' programme is currently being feasibility tested and provides clinicians with a prognostic tool using symptoms and signs to improve the identification of children at risk of poor outcome (hospitalisation for RTI). We will establish if reducing clinical uncertainty helps clinicians feel safer to not prescribe for children at low risk of hospitalisation.

Contributors

JH, PL, JI, AH & CC were responsible for developing the research questions and study design; CC, JH, PL & JI for study management and CC, JH, PL, JI & AH for writing the manuscript; CC accepted the final version and is manuscript guarantor.

Competing interests

We declare that we have no competing interests.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

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