

THE UNIVERSITY OF HULL

Medically Unexplained Symptoms in Children: Systemic Perspectives and
Interventions

being a Thesis submitted in partial fulfilment
of the requirements for the degree of Doctor of Clinical Psychology
in the University of Hull

by

Stephanie Roanne Sarah Burchill

BSc (Hons) Psychology
University of York

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Overview

This thesis portfolio is comprised of three parts:

Part One – Systematic Literature Review

The systematic literature review explored the efficacy of psychological family interventions for children with functional gastrointestinal pain. A systematic search of electronic databases identified eight studies to be reviewed. A narrative synthesis of the findings relating to effectiveness is presented alongside a review of methodological quality of each research paper. Conclusions regarding efficacy are made, in addition to a discussion of the clinical implications and areas for future research.

Part Two – Empirical Paper

The empirical paper comprises a qualitative exploration of teachers' beliefs regarding medically unexplained symptoms in children and the role of families in relation to these difficulties. The study utilized Interpretative Phenomenological Analysis (IPA). Four superordinate and 11 subordinate themes were identified. Themes provide an insight into how teachers understand MUS within their professional role, how they understand MUS in the children and families they work with and how teachers understand their own role in respect to these difficulties. The findings are discussed in relation to existing theory, alongside the implications of the findings and recommendations for future research.

Part Three – Appendices

The appendices include supporting documentation relevant to the Systematic Literature Review and the Empirical Paper, along with an epistemological statement and a reflective statement.

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Part One – Systematic Literature Review

The Efficacy of Psychological Family Interventions for Children with Functional Gastrointestinal Pain: A Systematic Review

*Stephanie Burchill¹ & Annette Schlösser¹

¹ Department of Psychological Health and Wellbeing, The University of Hull, Aire Building, Cottingham Road, Hull, United Kingdom, HU6 7RX

Tel: 01482 464106

Email: A.Schlösser@hull.ac.uk

*Corresponding author: Tel: 07502 506491; Email: s.r.burchill@2013.hull.ac.uk

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Abstract

The family plays a significant role in understanding the manifestation of functional gastrointestinal pain in children. However, no systematic review has yet examined the significance of including the family in treatment protocols. This systematic review sought to identify and evaluate the efficacy of psychological family interventions for children with functional gastrointestinal pain. Eight papers describing seven intervention protocols were evaluated. Outcomes assessing pain, daily functioning and systemic variables were extracted and considered. Risk of bias was also assessed. The review found that psychological family interventions brought about short-term improvements in pain. However, findings regarding functioning are inconsistent and systemic outcome variables are rarely reported in the literature. The review recommends further research, to include more robust and consistent methodological designs.

Keywords: functional; gastrointestinal pain; abdominal pain; psychological interventions; children; family

Introduction

Abdominal pain is the most common type of chronic pain reported in children (Huertas-Ceballos, Logan, Bennett & Macarthur, 2009). For some it is inconsequential and alleviates naturally (Vlieger, Menko-Frankenhuis, Wolfkamp, Tromp & Benninga, 2007), while for others it causes significant impairment, negatively impacting daily life (Fisher et al., 2014). Within the pediatric literature the term ‘functional’ is widely favoured when describing chronic pain (Eminson, 2007), a term which reflects the absence of an identifiable organic cause (Alfven, 2003) and the understanding that symptoms are manifest in response to psychosocial factors (Drossman, 2006). However, a range of terminologies exists.

‘Recurrent Abdominal Pain’ (RAP) was the term first used to describe a specific pattern of unexplained abdominal pain, known as Apley’s criteria (Apley, 1975). According to this, symptoms were sufficiently severe to interfere with daily activities, occurring at least 3 times over a period of 3 months. Classification of functional gastrointestinal disorders has since significantly developed following the introduction of the ROME-II (Rasquin-Weber et al., 1999) and subsequent ROME-III (Drossman et al., 2006; Appendix 2), which provide formal guidance on the identification of multiple forms of abdominal pain, according to the distinct clusters of symptoms presented.

The prevalence of RAP has been estimated to range between 1.6% to 41.2% in child populations aged 4-18 years worldwide, with a pooled prevalence rate of 13.5% (Kortnerink, Diederer, Benninga, & Tabbers, 2015), and as many as 10% of children experiencing the condition at any given time (Ramchandani, Hotopf, Sandhu & Stein, 2005). However, despite the inconsistent prevalence rates reported (King, Chambers, Huguet, MacNevin, McGrath, Parker & MacDonald, 2011) it is important to understand and develop effective treatment protocols for RAP, given its substantial impact on the lives of children and their

families (Youseff, Murphy, Langseder, & Rosh, 2006). Moreover, chronic abdominal pain (CAP) has significant economic and social implications as this population access high levels of medical care (Robins Smith, Glutting & Bishop, 2005) and attend school irregularly (Størdal, Nygaard & Bentsen 2005; Gulewitsch, Müller, Hautzinger &Schlarb, 2013). If not successfully addressed in childhood, it is persistent. Studies have demonstrated between 25% and 60% of children with RAP continue to experience significant difficulties into adulthood, including further functional gastrointestinal problems, namely Irritable Bowel Syndrome (IBS), as well as other functional somatic difficulties and affective disorders including depression and anxiety (Walker, Garber, Van Slyke & Greene, 1995; Walker, Guite, Duke, Barnard & Greene, 1998; Jarrett, Heitkemper, Czyzewski, & Shulman, 2003; Shelby et al., 2013).

Effective management and treatment of RAP is particularly challenging for physicians. There is limited data supporting the efficacy of pharmacological interventions (Saps & Lorenzo, 2009; Vlieger, Rutten, Govers, Frankenhuis & Benninga, 2012), a primary component of standardised medical care. The absence of an identifiable organic cause has led to psychological factors gaining greater prominence (Maynard et al., 2010). Despite disagreement on the specific aetiology of recurrent pain, there is a shared understanding that psychological constructs are important, (Frazer & Rappaport, 1999; Robins et al., 2005), causing physicians to shift towards a psychological understanding (Huertas-Ceballos, Logan, Bennett & Macarthur, 2009). Consequently, a biopsychosocial framework is becoming increasingly favoured (Plunkett & Beattie, 2005; Weydert, Ball & Davis, 2003), emphasising an appreciation of the interaction between body, mind and external influences (Jarrett, Heitkemper, Czyzewski & Shulman, 2003).

Psychological interventions aim to modify psychological constructs contributing to the development and maintenance of pain (Eccleston et al., 2009). Systematic reviews provide support for their use with children experiencing functional abdominal pain. Huertas-Ceballos, Logan, Bennett and Macarthur (2009) conclude that Cognitive-Behavioural approaches yield positive outcomes, while Weydert, Ball and Davis (2003) support the use of behavioural methods, citing the benefits of treatment protocols involving “self-monitoring, relaxation training, coping skills and positive imagery skills (p9).” Fisher et al’s (2014) meta-analysis supports the efficacy of psychological interventions in reducing both abdominal pain and disability ratings, immediately following treatment. The authors conclude that psychological therapies, namely CBT and behavioural approaches, are beneficial in addressing symptoms. However, their longer-term usefulness is uncertain. Similar results are supported by an earlier meta-analysis (Palermo et al. 2000).

There is substantial variation in the content and delivery of intervention protocols within studies evaluating psychological treatment. Whilst the majority of interventions are delivered to children individually or in groups, some are systemic and specifically include parents (Eccleston, Palermo, Fisher & Law, 2012). These are thought to be beneficial, due to evidence linking parental factors with child pain presentation. For example, there is increased symptom-reporting in children where parents’ reporting of their own physical health problems is greater (Walker & Greene, 1989; Craig, Cox & Klein, 2002).

Additionally, parents influence the recurrence of abdominal pain reporting in children through their own beliefs due to the manner in which they determine parents’ behavioural response to, and management of, child complaints (Levy et al., 2006; Ramchandi et al., 2005; Walker et al., 2006; Walker, Claar & Garber, 2002). In particular, parental over-

attentiveness to their child's abdominal pain is associated with an increase in reported pain complaints (Levy et al., 2004).

To date, there have been no systematic literature reviews specifically evaluating family interventions for children with functional gastrointestinal pain, a systemic therapeutic approach. Such an evaluation is particularly important given the weight of evidence for the significance of the 'family' in the development and maintenance of functional difficulties. Moreover, identification of effective intervention protocols is desirable, given increased financial pressures within the National Health Service (NHS) in the UK (Thompson & Walter, 2016). This review aims to provide information regarding the current family interventions and to identify methodological limitations within the literature. It will help inform physicians seeking to treat children, identify future directions for research and contribute to the development of more robust treatment trials.

The individual aims of this review include:

- To identify the psychological family interventions available in the treatment of functional gastrointestinal pain, and the characteristics of such interventions.
- To evaluate the efficacy of interventions based on assessment of primary outcomes, specifically pain and pain-related impairment in children.
- To evaluate the efficacy of interventions based on the assessment of systemic outcomes, specifically within the family.

Method

Data Sources and Search Strategy

A search of the literature was conducted during December 2015 and January 2016 using a range of electronic databases, including PsycINFO (1938 – January 2016), CINAHL Complete (1981 – January 2016), Medline (1951 – January 2016), Academic Search Premier (1983 – January 2016) and Web of Science (1951 – January 2016). No limit was placed on the date of publication.

The search did not identify any previously published systematic literature reviews evaluating psychological family interventions for children and/or adolescents presenting with functional gastrointestinal pain, ensuring this review was not replicating existing bodies of work. The search terms used included (* indicates truncation): (“recurrent abdominal pain” or “functional abdominal pain” or “non specific abdominal pain” or “chronic abdominal pain” or “irritable bowel syndrome” or FAP or RAP or CAP or IBS) N5 (child* or adoles* or teen* or youth* or juvenile* or young* or pediatric* or paediatric*) AND (intervent* or therap* or treat* or rehab* or manag*) AND (parent* or famil* or systemic or carer* or caregiver*)

The reference lists of all articles meeting the inclusion criteria were hand-searched to identify further papers.

Study Selection (Inclusion and Exclusion Criteria)

To be eligible for inclusion in the review, articles met the following criteria:

- Published in a peer-reviewed journal.

- The intervention was delivered to school-aged children (6-12 years) and/or adolescents (13-18 years) with a diagnosis of, or difficulties consistent with a diagnosis of, functional gastrointestinal pain, in the absence of psychiatric co-morbidity. The accepted synonyms for functional gastrointestinal difficulties included: Recurrent Abdominal Pain (RAP), Functional Abdominal Pain (FAP), Chronic Abdominal Pain (CAP) or Irritable Bowel Syndrome (IBS).
- The therapeutic content of the intervention was psychological in nature.
- The intervention stated the involvement of a parent(s) (or synonyms: family, carer(s), caregiver(s), systemic) in the title or abstract.
- The study reported quantitative data pre- and post-intervention. Feasibility or pilot studies were accepted as long as post-intervention outcome measure(s) were reported.
- The study was published in English.

Study Quality Assessment

The quality of all studies was evaluated according to a Data Quality Checklist (DQC; Appendix 3). The DQC used was constructed specifically for the purpose of this evaluation. The following resources were utilised in the construction of the DQC: Downs and Black checklist (1998), Critical Appraisal Skills Programme (CASP, 2014) checklist, The Consolidated Standards for Reporting Trials (CONSORT) Statement (Moher et al., 2010), Cochrane 'Risk of Bias' tool (Higgins & Altman, 2008), and guidelines regarding the design of treatment trials for gastrointestinal disorders (Irvine et al., 2006).

'Risk of Bias' was evaluated according to four categories of bias:

- Selection Bias – This accounted for whether a thorough, randomisation process had been carried out and reported, including generation and concealment of the allocation sequence.
- Detection Bias – This accounted for the blinding of individuals evaluating the outcome of the intervention. Blinding of participants or individuals delivering the intervention were not included due to the practical and ethical limitations necessary in order to achieve this (Fisher et al., 2014).
- Attrition Bias – This accounted for the reporting of incomplete data and data losses throughout the study i.e. the occurrence of attrition/exclusions, the numbers and reasons for attrition/exclusion in each intervention group compared to total randomised participants and if compensatory adjustments to data analysis were conducted.
- Reporting Bias – This accounted for the selective reporting of quantitative data outcomes.

The DQC listed 60 criteria, each of which was attributed a numerical score according to the following categories: Yes (1), No/Cannot Determine (0) or Partially (0.5). An independent researcher evaluated a random sample of the studies. Inter-rater reliability was found to range between 88% and 93%. Discrepancies in ratings were discussed and ratings reassigned if necessary based on collaborative decision-making.

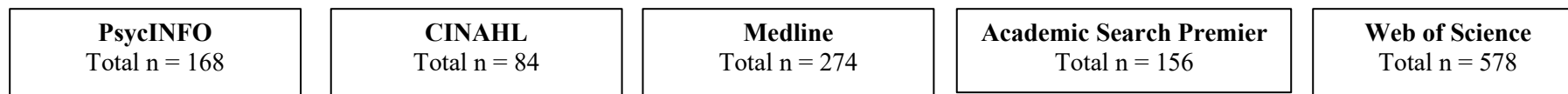
Data Extraction and Synthesis

Data extracted from studies included: Aims and hypotheses; Design; Recruitment method; Sample characteristics; Details of the intervention (theoretical evidence base; aim; content;

duration; mode of delivery); Outcome measures (type, time-point completed; reliability; validity; theoretical justification(s) for use); Results; Conclusions (Appendix 4). Narrative synthesis of the data was conducted. This approach was integrative and involved data being combined, summarised and evaluated using text (Dixon-Woods, Agarwal, Jones, Young & Sutton, 2005). Meta-analysis, a statistical approach, was not employed due to the variation in intervention methodology and type of outcome variables used (Schmidt & Hunter, 2014).

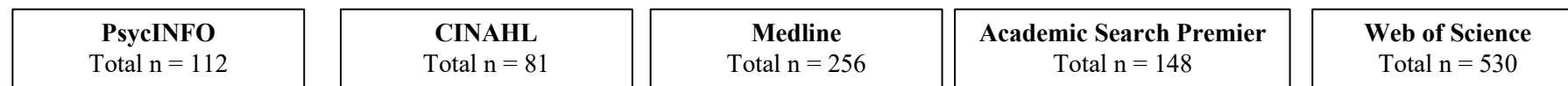
Details of Included and Excluded Studies

A total of 1260 studies were generated, based on an electronic search of the databases. Limiters were then applied (English language and Peer-reviewed) resulting in 1127 studies. The title and abstract of these studies were assessed for general relevance to the topic under study. Studies were rejected if they were: reporting on an unrelated subject, pharmacological in focus, literature reviews or case studies. Following the removal of duplicates, 26 papers remained. The Inclusion and Exclusion Criteria were applied following a full text review, resulting in seven papers. The reference lists of these papers were hand-searched, resulting in one additional paper. A total of eight papers were included for review. Figure 1 outlines the procedure in which studies were selected.



Total n = 1260

Limiters Applied: English Language (PsycINFO = 9; CINAHL = 1; Medline = 18; WoS = 48); Peer Reviewed (PsycINFO = 47; CINAHL = 2; Academic Search Premier = 8)



Total n = 1127

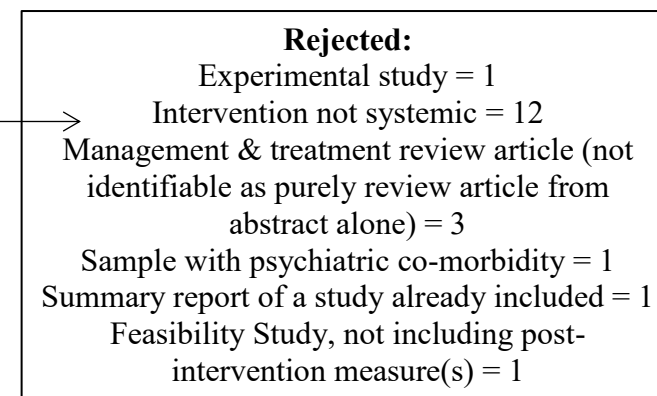
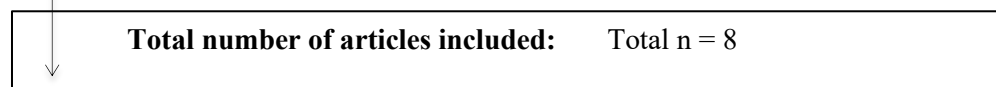
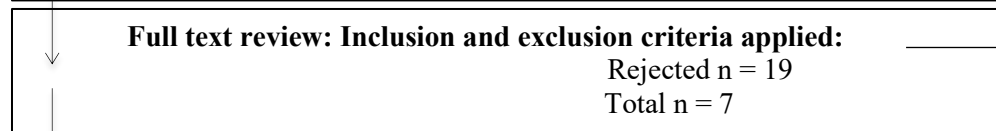
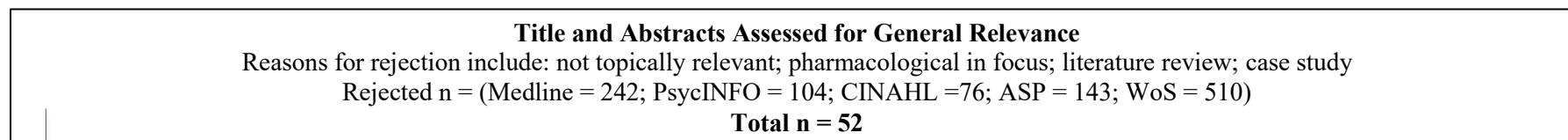


Figure 1: Selection of Studies for Inclusion in the Systematic Literature Review

Results

Overview of Studies Included

The search yielded eight studies reporting psychological family interventions for children with functional abdominal pain (FAP), recurrent abdominal pain (RAP), chronic abdominal pain (CAP) or Irritable Bowel Syndrome (IBS). Four studies described themselves as cognitive-behavioural interventions (Duarte et al., 2006; Groß & Warschburger, 2013; Robins et al., 2005; Sanders et al., 1994) with three of these specifically describing the intervention as a ‘family’ intervention (Duarte et al., 2006; Robins et al., 2005; Sanders et al., 1994). One study also included “standard medical care” alongside the delivery of the cognitive-behavioural intervention component (Robins et al., 2005). Two studies reported the outcomes of the same “Social Learning and Cognitive-behavioural” intervention, one reporting the results up to 6 months post-intervention delivery (Levy et al., 2010) and one reporting results 12-months post intervention delivery (Levy et al., 2013). Gulewitsch et al. (2013) presented a “Brief Hypnotherapeutic Behavioural” intervention. Finney, Lemanek, Cataldo, Katz and Fuqua et al. (1989) presented a “Multi-component targeted therapy.”

Table 1 presents an overview of the main characteristics of each study included in the review.

Table 1: Main Characteristics of Reviewed Studies

Author Year (Country)	Intervention vs. Comparison / Control Condition	Target of Intervention (including inclusion/exclusion criteria)	Design	Child Sample	Outcome Measure(s) and Clinical Outcomes
Duarte et al. (2006) (Brazil)	Cognitive Behavioural Family Intervention vs. Standard Paediatric Care (SPC) in addition to medical advice and ophthalmic tests	Children with recurrent abdominal pain (RAP) and their parents. <u>Inclusion Criteria</u> 1. RAP diagnosis (Apley's criteria (1975) for RAP; confirmed as non-organic by range of physiological tests). <u>Exclusion Criteria</u> No exclusion criteria were specifically reported.	RCT	Total N = 32 Child age range: 5.1-13.9 years <u>Intervention Group (IG):</u> N = 15 (Male = 4; Female = 11) Mean age = 9.9 years (+/- 2.2 years) Mean weight = 34.2 kg (+/- 12) Avg. time from start of pain = 25 months (+/- 17 months) <u>SPC:</u> N = 17 (Male = 6; Female = 11) Mean age = 8.4 years (+/- 2.0 years) Mean weight = 28.8 kg (+/- 10.9) Avg. time from start of pain = 25 months (+/- 18 months)	Outcome measures 1, 2 and 3 assessed at 4 time-points: Session 1 (T1), Session 2 (T2), Session 3 (T3) and Session 4 (T4): 1. Frequency of pain per month (VAS; CP) <i>Significant difference between groups at T2, T3 and T4, with greater reductions seen in IG.</i> 2. Intensity of pain per month (VAS; CP) <i>No significant difference between groups across all points of measurement (T1, T2, T3 and T4).</i> 3. Pressure Pain Threshold (Mechanical Pressure Algometer; T) <i>No significant difference between groups across all points of measurement (T1, T2, T3 and T4).</i>

No significant difference between demographic and clinical variables of groups at baseline (T1).

<p>Finney, Lemanek, Cataldo, Katz and Fuqua (1989) (USA)</p>	<p>Multi-component Targeted Therapy protocol vs. Untreated comparison group (UCG)</p>	<p>Children with RAP and their parents.</p> <p><u>Inclusion Criteria</u> IG: 1. At least 2 episodes of abdominal pain (of which the cause is unknown) during 3 month period. 2. Pain severe enough to interfere with daily living.</p> <p>UCG: 1. Less than 19 years of age. 2. History of 2 or more incidents of abdominal pain.</p>	<p>Clinical replication series</p>	<p>Total N = 32</p> <p><u>IG:</u> N = 16 (Male = 6; Female = 10) Age range = 6.4– 13.6 years Mean age = 11.3 years</p> <p><u>UCG:</u> N = 16 Matched for gender. Age range = 4.4-18.5 years Mean age = 12.4 years</p>	<p>Outcome measures 1,2,3 and 4 recorded for IG before (T1) and after intervention (T2):</p> <ol style="list-style-type: none"> 1. Pain symptom ratings (P; T) <i>P: 81% of IG reported pain improved or resolved at T2 (3-6 months following treatment)</i> <i>T: Therapist ratings matched parent ratings for 13 (81%) children.</i> 2. Number of school absences (S) <i>Significant reduction in number of school days absent from T1 to T2 for IG.</i> 3. Number of school nurse visits (S) <i>Non-significant reduction in number of school nurse visits from T1 to T2 for IG.</i> 4. Medical care utilization (M) <i>Significant reduction in the use of medical care for IG.</i> <p>Only outcome measure 4 recorded for untreated group during 12 months period concurrent to intervention study – first 6 months (T1) and second 6 months (T2):</p>
		<p><u>Exclusion Criteria</u> IG: No exclusion criteria specifically reported.</p>			

		UCG: 1. Medical diagnosis (i.e. appendicitis, peptic ulcer, abdominal injury). 2. Previously undergone psychological or psychiatric intervention.			4. Medical care utilization (M) <i>Non-significant increase in use of medical care by untreated comparison group from T1 to T2.</i>
Groß and Warschburger (2013) <i>(Germany)</i>	Cognitive Behavioural Pain Management Programme vs. Wait List Control Group (WLCG)	Children with chronic abdominal pain (CAP) and their parents. <u>Inclusion Criteria</u> 1. School-aged children Rome-III criteria for CAP <u>Exclusion Criteria</u> 1. The presence other functional gastrointestinal disorder(s) (Rome-III criteria) 2. Psychological disorder(s)	RCT	Total N = 29 Age range = 7-12 years <u>IG:</u> N = 15 (Male = 2 Female = 13) Age range = 6.6-11.2 years Mean (SD) = 9.15 years (1.54) Duration of CAP = 2.43 years (1.32) No. of physician consults (past year) = 2.33 (range 0-10) Type of physician contacted: Paediatrician family physician = 6 (40.1%) Gastroenterologist = 4 (26.7%) No physician = 5 (33.2%)	Outcome measures assessed at 3 time-points: baseline (T1), post-treatment (T2) and 3 month follow-up (T3). <u>Primary Outcomes</u> 1. Frequency of pain (PD; CP) <i>Significant 'group x time' interaction – Significant reduction in pain frequency from T1 to T3 for IG. Significant reduction in pain frequency from T1 to T2 for IG. Non-significant increase in pain frequency from T2 to T3 for IG. Non-significant reduction in pain frequency for WLCG from T1 to T3.</i> 2. Duration of pain (PD; CP) <i>Significant 'group x time' interaction – Significant reduction in pain duration from T1 to T3 for IG. Significant reduction in pain duration from T1 to T2 for IG. Significant reduction in pain duration from</i>

WLCG:

N = 14 (Male = 2;

Female = 12)

Age range = 8.0-11.9
years

Mean (SD) = 10.1 years
(1.4)

Duration of CAP = 3.1
years (2.1)

No of physician consults
(past year) = 4.8 (range
0-22)

Type of physician
contacted:

Paediatrician family
physician = 7 (50%)

Gastroenterologist = 3
(21.4%)

No physician = 4
(28.6%)

No significant
difference between
groups at baseline.

T2 to T3 for IG.

*Non-significant reduction in pain duration
for WLCG from T1 to T3.*

3. Intensity of pain (PD using VAS; CP)
*Significant 'group x time' interaction –
Significant reduction in pain intensity from
T1 to T3 for IG.
Significant reduction in pain intensity from
T1 to T2 for IG.
Non-significant reduction in pain intensity
from T2 to T3 for IG.
Non-significant increase in pain intensity
from T1 to T3 for WLCG.*

Secondary Outcomes:

1. Health Related Quality of Life (PedsQL; C)
*Significant 'group x time' interactions for all
aspects of functioning assessed: physical,
psychological, social and school functioning.
Significant improvement from T1 to T2 for
all aspects of functioning for IG.
Non-significant change from T2 to T3 for all
aspects of functioning for IG.*

*Non-significant change across all aspects of
functioning, across all time points, for
WLCG.*
 2. Pain related impairment (KINDL-R; C)
*Significant 'group x time' interaction –
Significant reduction in pain related
impairment from T1 to T3 for IG.
Significant reduction in pain related
impairment from T1 to T2 for IG.*
-

*Non-significant reduction in pain related impairment from T2 to T3 for IG.
Non-significant increase in pain related impairment from T1 to T3 for WLCG.*

Clinical Significance of Outcomes:

At T2 90.6% of IG no longer met diagnostic criteria (Rome-III) for CAP in contrast to 9.4% of WLCG.

Gulewitsch, Müller, Hautzinger and Schlarb (2013)	Brief Hypnotherapeutic -behavioural Intervention vs. WLCG	Children with functional abdominal pain (FAP) or irritable bowel syndrome (IBS) and their parents.	RCT	Total N = 38 (Male = 14; Female = 24) Mean age (SD) = 9.37 years (1.72) FAP = 76.3% IBS = 23.7% Avg. onset of complaints (SD) = 34.6 months (40.41)	<p>Outcome measures assessed at 2 time-points: baseline (T1) and post-treatment (T2; 2 months following end of intervention)</p> <p><u>Primary Outcomes:</u> Pain Measures:</p> <ol style="list-style-type: none"> 1. Number of days with AP (PD; C) <i>IG showed significantly greater reduction in number of days of pain between T1 and T2 than WLCG.</i> 2. Pain intensity (PD; C) <i>IG showed significantly greater reduction in pain intensity between T1 and T2 than WLCG.</i> 3. Pain duration (PD; C) <i>IG showed significantly greater reduction in pain duration between T1 and T2 than WLCG.</i> <p>Clinical Remission – Additive index of pain based on 3 pain ratings from the pain diary. Ratings of pain frequency, intensity and duration were z standardised</p>
(Germany)		<p><u>Inclusion Criteria</u></p> <ol style="list-style-type: none"> 1. Children aged 6-12 years. 2. Diagnosis of FAP or IBS (Rome-III). 		<p><u>IG:</u></p> <p>N = 20 (Male = 9; Female = 11) Duration pain (SD) = 30.45 months (41.04) Physician consultations (last 3 months; SD) = 1.06 (0.90)</p>	
		<p><u>Exclusion Criteria</u></p> <ol style="list-style-type: none"> 1. Currently receiving treatment from another physician or psychotherapist. 2. Fulfilled criteria for functional dyspepsia or abdominal migraine. 		<p><u>WLCG:</u></p> <p>N = 18 (M = 5; F = 13) Duration pain (SD) = 39.22 months (40.36) Physician consultation</p>	

(last 3 months; SD) =
1.97 (2.02)

No significant
difference between
groups at baseline.

to produce index score of pain. Clinical remission =
≥ 80% improvement in index score.

*55% of IG showed clinical remission, significantly
more in comparison to only 5.6% of WLCG.*

Pain related disability (P-PDI; C)

*IG showed significantly greater reduction in pain
related disability between T1 and T2 than WLCG.*

*Additional multivariate analysis combining 3 pain
measure and pain-related disability measure
completed by children confirmed significantly
greater improvement by IG.*

Number of school absences

*No analysis conducted due to rarity with which
absences were reported.*

Secondary Outcomes:

Child abdominal pain (API; P)

*Significantly greater reduction of symptoms in IG
between T1 and T2 compared to WLCG.*

Pain related disability (P-PDI; P).

*IG showed significantly greater reduction in pain
related disability between T1 and T2 than WLCG.*

Health related quality of life (KINDL-Kid/KINDL-
Kiddy; C)

*IG showed improvement unlike WLCG. However,
improvement in IG was non-significant.*

					Health related quality of life (KINDL-Kid/KINDL-Kiddy; P) <i>Improvement in both IG and WLCG but improvement was non-significant. Difference between groups also non-significant.</i> <i>Additional multivariate analysis combining API and pain-related disability measure completed by parents confirmed significantly greater improvement by IG.</i>
Levy et al. (2010) (USA)	Social Learning and Cognitive Behaviour Therapy vs. Education Support (ES)	Children with FAP and their parents. <u>Inclusion Criteria</u> 1. Aged 7-17 years. 2. Experienced 3 or more episodes of RAP over 3 months. 3. Child and parent co-habited for past 5 years; or cohabited for at least half child's life if parental custody split. <u>Exclusion Criteria</u> 1. Symptoms found to have an organic cause. 2. Any chronic disease such as Crohn's disease, ulcerative colitis, pancreatitis, diabetes,	RCT	N = 200 Age = 7-17 years <u>IG:</u> N = 100 (Male = 29; Female = 71) Age (SD) = 11.12 years (2.6) Caucasian = 85 (93.4%) No. experienced abdominal pain in last 12 months = 61 <u>ES:</u> N = 100 (Male = 26; Female = 74) Age (SD) = 11.3 years (2.5) Race Caucasian = 87 (97.8%) No. experienced abdominal pain in last 12 months = 57	Outcome measures assessed at 4 time-points: baseline (T1), 1 week post-treatment (T2), 3-months post-treatment (T3); 6-months post-treatment (T4). <u>Primary Outcome Measures</u> 1. Pain (FPSR; C & P) <i>Significantly greater reduction in parental reports of pain across T2, T3 and T4 for IG. No significant difference in child reports of pain across time points or between groups.</i> 2. General disability (FDI; C & P) <i>Child: Improvement seen over time for both IG and ES, but difference over time or between groups was non-significant. Parent: Improvement across time for both IG and ES. However, difference was non-significant for both across time and between groups.</i> <u>Secondary Outcome Measures</u> 1. Child depression (CDI; C & P) <i>Child: Depression did not differ significantly across time or between groups. Parent: Depression decreased more in IG</i>

		<p>epilepsy or celiac sprue.</p> <p>3. Lactose intolerance.</p> <p>4. Major surgery within previous year.</p> <p>5. Developmental difficulties necessitating full-time specialist education or problems with communication.</p> <p>6. Not English speaking.</p>		<p>No significant difference between groups regarding demographics or clinical characteristics <u>except for</u>: parent reported child current pain (pain reports of IG significantly greater than ES); child reported pain minimisation (skill significantly greater in ES)</p>	<p><i>than the ES but the difference between groups was only significant at T2.</i></p> <p>2. Child anxiety (MASC; C) <i>Child reports of depression and anxiety did not differ significantly across time or between groups.</i></p> <p><u>Systemic Measures</u></p> <p>1. Parental solicitousness (Protectiveness subscale of the ARCS; P) <i>Significant reduction in parental solicitousness in IG compared to ES across T2, T3 and T4.</i></p> <p>2. Pain beliefs (PBQ; P) <i>IG reported significantly greater reduction in protectiveness and significantly greater increase in child's confidence regarding emotion and problem focused coping skills – across T2, T3 and T4.</i></p>
Levy et al. (2013) (USA)	Social Learning and Cognitive Behaviour Therapy	Children with FAP and their parents.	RCT	Same as Levy et al. (2010).	<p>Outcome measures assessed at additional time-point – T5: baseline (T1), 1 week post-treatment (T2), 3-months post-treatment (T3); 6-months post-treatment (T4); 12-months post-treatment.</p> <p><u>Primary Outcome Measures</u></p> <p>1. Pain – (FPSR; C & P) <i>Child: Reduction in pain from T1 to T5 for both IG and ES, but only significant for IG. However, the differences in pain scores between groups from T1 to T5 were small and non-significant.</i></p>

Parent: *Significant reduction in pain from T1 to T5 seen for both the IG and ES. However, the between group difference between T1 to T5 was small and not significant.*

2. General disability (FDI; P).
Significant improvement from T1 to T5 and from T1 to T4 for both the IG and ES. No significant difference between groups from T1 to T5.

Systemic Measures

1. Parental solicitousness – Protectiveness subscale of the ARCS; P)
Significantly greater reduction in IG group than CG. The between group difference was small and non-significant.
2. Pain beliefs (PBQ; P)
Both IG and CG showed reduction in perceived threat of child’s pain from T1 to T5. However, the between group difference was significant – IG reported significantly greater reduction in perceived threat.

Robins, Smith, Glutting and Bishop (2005) (USA)	Cognitive Behavioural Family Intervention + Standard medical Care vs.	Children with RAP and their parents. <u>Inclusion/ Exclusion Criteria</u> 1. Not currently undergoing alternative cognitive	RCT	N recruited and randomised = 86 ‘child + parent dyads’ N completed study = 69 ‘child + parent’ dyads: Age range = 6-16 years Mean age (SD) = 11.25	Outcome measures assessed at baseline (T1), 3-months after start of study (T2), 6-12 months following start of study (T3). 1. Abdominal Pain Index (API; C & P) Parent and child: <i>Significantly lower pain scores at T2 and T3 for IG compared to SMC.</i>
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Standard Medical Care (SMC)	or behavioural intervention for RAP. 2. Apley's criteria (1975) for RAP.	years (2.45) Male = 30 Female = 39 Race: Caucasian = 88.4% African-American = 4.3%; Other = 7.2%	2. Functional Disability Inventory (FDI; C) <i>No significant interaction or main effects of group or time.</i> 3. School attendance (S) <i>IG missed school on significantly fewer occasions than the CG.</i> 4. Number of physician office visits and telephone calls (M) <i>No significant difference in total number of visits and phone calls to the doctor.</i>		
		<u>IG:</u> N = 46 (Male = 12; Female = 17) Mean age = 11.85 years (2.3) Race: Caucasian = 24; African American = 2; Other = 3			
		<u>SMC:</u> N = 40 (Male = 18; Female = 22) Mean age = 10.83 (2.5) Race: Caucasian = 37; African American = 1; Other = 2			
		No significant difference between groups at baseline with the exception of the level of parent education.			
Sanders, Sheperd,	Cognitive Behavioural	Children with RAP and their parents	RCT	N = 44 child + mother dyads	Outcome measures assessed at baseline (T1), immediately following treatment (T2), 6-months

Cleghorn and Woolford (1994)	Family Intervention vs.	<u>Inclusion Criteria</u> 1. Apley's criteria (1975) for RAP	Children: 7-14 years	post-treatment (T3); 12-months post-treatment (T4).
(Australia)	Standard Paediatric Care (SPC)	<u>Exclusion Criteria</u> 1. History included having had major surgery or serious physical illness. 2. Lactose intolerance. 3. Constipation 4. Recent virus. 5. Persistent loose bowel syndrome. 6. Currently taking any medication. 7. Currently receiving somewhere else. 8. Met diagnostic criteria for: Affective Disorder, Conduct Disorder, Oppositional Defiant Disorder, Psychosis or Developmental Disorder. 9. History included suspected sexual abuse.	<u>IG:</u> N = 22 child + mother dyads Mean age (SD) = 107.4 (19.1) months <u>SPC:</u> N = 22 child + mother dyads Mean age (SD) = 113.9 (28.8) months No significant differences between groups at baseline.	1. <u>Pain Intensity (PD using VAS; C)</u> <i>Significant interaction between group and time. Significant greater reduction in pain between T1 and T4 in IG compared to SPC.</i> 2. <u>Parent Observation of Pain Behaviour (POR)</u> <i>Significant interaction between group and time. Significant greater reduction in pain between T1 and T4 in IG compared to SPC.</i> 3. <u>Treatment Expectancies (T1 only; P)</u> Parental expectation of a positive outcome from treatment condition assigned to. <i>No significant difference between groups at T1.</i> 4. <u>Parent Satisfaction with Treatment (T2 only)</u> <i>Satisfaction was significantly greater for CBF than SPC in terms of "quality of service" and "overall satisfaction."</i> 5. <u>Relapse (at T3 & T4 only) – parent and child rated frequency of pain and rated the degree to which pain had interfered with daily life.</u> Parent: <i>At T3 and T4, IG reported significantly less pain episodes and reported pain as interfering with activities significantly less than SPC.</i> Child: <i>IG reported significantly less instances of pain than SPC at T4, but not at</i>

T3. IG rated pain as interfering significantly less than SPC at T3 and T4.

Notes:

Table only reports variables considered within the analysis i.e. evaluating pain, pain related impairment and systemic variables.

The following abbreviations were used for details regarding 'Outcome Measure(s) & Clinical Outcomes':

Visual Analogue Scale (VAS); Pain Diary (PD); KINDL-R, KINDL-Kiddy, KINDL-Kid (Ravens-Sieberer & Bullinger, 1998); Pediatric Quality of Life Inventory (PEDS-QL; Varni, Seid & Kurtin, 2001); Pediatric Pain Disability Index (P-PDI; Hübner et al., 2009); Abdominal Pain Index (API; Walker, Smith, Garber & Van Slyke, 1997); The FACES Pain Scale-Revised (FACES, Hicks, von Baeyer, Spafford, van Korlaar & Goodenough, 2001); Functional Disability Inventory (FDI; Claar & Walker, 2006; Walker & Greene, 1991); Child Depression Inventory (CDI; Kovacs, 1981; Kovacs, 2003); The Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings & Conners, 1997); Adults Responses to Children's Symptoms (ARCS; Walker, Levy & Whitehead, 2006; Van Slyke & Walker, 2006); Pain Response Inventory (PRI; Walker, Levy & Whitehead, 2006; Walker et al., 2008); Pain Beliefs Questionnaire (PBQ; Walker, Baber, Garber & Smith, 2008; Walker, Smith, Garber & Claar, 2005); ARCS Parent Observation Record (POR; Sanders, Shepard, Cleghorn & Woolford, 1994); Child Behaviour Checklist (CBCL; Achenbach & Edelbrock, 1983).

CP = child report with parent support; C = child report; P = parent report; S = school report; T = therapist report; M = medical record.

Characteristics of Research

Overview of Methodological Quality

The percentage quality of each study was calculated (Appendix 5). The scores ranged from 44% (Finney et al., 1989) to 84% (Robins et al., 2005). Five (63%) of the studies had a quality score greater than 80%. Of the remaining three studies, two scored 62% (Duarte et al., 2006; Sanders et al., 1994) and the other 44%. This suggests that overall the methodological quality of the studies reviewed is high.

Risk of Bias

Table 2 presents a summary of risk for each study. Risk of selection, detection and attrition bias was generally low across studies, but if not bias tended to be unclear and not interpretable. However, high risk of reporting bias was more widespread with four studies failing to report all outcome data (Duarte et al., 2006; Levy et al., 2010; Robins et al., 2005; Sanders et al., 1994). Only one study was deemed at low risk across all assessments of bias (Levy et al., 2013).

Study Design

Seven of the studies utilised a prospective randomised control trial (RCT) design, six of which assessed outcome variables pre- and post-intervention delivery, as opposed to assessment during the process of delivering the intervention (Duarte et al., 2006). The nature of the control group utilised in RCTs varied. Three studies included a comparison group under-going an alternative intervention protocol, each choosing a form of standard medical care (Duarte et al., 2006; Robins et al., 2005; Sanders et al., 1994). Both Levy et al. (2010) and Levy et al. (2013) included a comparison group receiving an intervention protocol termed 'educational support.' Groß and Warschburger (2013) and Gulewitsch et al

(2013) included a wait-list control group. The remaining study utilised a Clinical Replication Series (CRS) design (Finney et al., 1989) in which outcomes were assessed before and after intervention, one of which was compared to an untreated population.

Inclusion and Exclusion criteria

Five studies specified the participants meet Apley's criteria (Apley, 1975) for Recurrent Abdominal Pain (RAP; Duarte et al., 2006; Levy et al., 2010; Levy et al., 2013; Robins et al., 2005; Sanders et al., 1994). Two studies referred to ROME classifications (Rasquin-Weber et al., 1999; Drossman et al., 2006), requiring participants to meet the criteria for CAP (Groß & Warschburger, 2013) or FAP or IBS (Gulewitsch et al., 2013). Finney et al. (1989) made no reference to any diagnostic criteria. With the exception of Duarte et al. (2006) and Finney et al. (1989), all reported exclusion criteria. However, these varied greatly across studies (Table 1). Main examples of exclusion criteria include diagnosed psychological health problems or functional gastrointestinal difficulty and receiving concurrent psychological or physiological treatment.

Sample Characteristics

The sample sizes ranged from 22 (Sanders et al., 1994) to 200 (Levy et al., 2010; Levy et al., 2013). However, six of the eight studies had a sample of no more than 43 children. The country in which studies were conducted varied. With the exception of Brazil (Duarte et al., 2006) and Australia (Sanders et al., 1994), all studies were conducted in Germany (Groß & Warschburger, 2013; Gulewitsch et al., 2013) or the USA (Levy et al., 2010; Levy et al., 2013; Robins et al., 2005). Gender composition was reported across all studies, except Sanders et al. (1994). Percentage of females ranged from 55% (Gulewitsch et al., 2013; Robins et al., 2005) to 86% (Groß and Warschburger, 2013). Age composition was also

described across all studies. The mean age ranged from 8.4 years (Duarte, 2006) to 11.25 years (Robins et al., 2005).

Two studies reported extensive information regarding parental characteristics, including age, gender composition, ethnicity, education status, employment status, marital status and the presence of an IBS diagnosis (Levy et al., 2010; Levy et al., 2013). Two other studies reported limited characteristics, including occupation and education (Robins et al., 2005) or age and socio-economic status (Sanders et al., 1994).

Recruitment strategy was described by seven studies. Studies recruited directly through physician referral (Levy et al., 2010; Levy et al., 2013; Robins et al., 2005), from a paediatric gastroenterology (Duarte et al., 2006) or psychology service (Finney et al., 1989) or by advertising in the community and medical centres (Gulewitsch et al., 2013; Levy et al., 2010; Levy et al., 2013). Groß & Warschburger (2013) recruited children from a school sample, assessed as part of a different research study.

Table 2: Risk of Bias of Reviewed Studies

	Duarte et al (2006)	Finney et al. (1989)	Grob and Warschburger (2013)	Gulewitsch et al (2013)	Levy et al. (2010)	Levy et al. (2013)	Robins et al. (2005)	Sanders et al. (1994)
Risk of Selection Bias	Unclear Risk	Not Applicable	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk
<i>States if randomization (R) occurred and describes the relevant process.</i>	<i>Information regarding process of R not reported in text.</i>	<i>Study only included one intervention condition.</i>	<i>R process reported.</i>	<i>R process reported.</i>	<i>R process reported.</i>	<i>R process reported.</i>	<i>R process reported.</i>	<i>Information regarding process of R not reported in text</i>
Risk of Detection Bias	Unclear Risk	High Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
<i>States if assessor of outcomes variables was blinded.</i>	<i>Information not reported in text.</i>	<i>Outcome measures completed by participant independent of the researcher(s) – therapist delivering intervention collected ratings from two participants.</i>	<i>Outcome measures completed by participant independent of the researcher(s).</i>	<i>Outcome measures completed by participant independent of the researcher(s)</i>	<i>Outcome measures completed by participant independent of the researcher(s) – states that the nurse assessor blind to intervention assignment.</i>	<i>Outcome measures completed by participant independent of the researcher(s) – states that the nurse assessor blind to intervention assignment.</i>	<i>Outcome measures completed by participant independent of the researcher(s)</i>	<i>Outcome measures completed by participant independent of the researcher(s)</i>

Risk of Attrition Bias	Low Risk	High Risk	Unclear Risk	Low Risk	Low Risk.	Low Risk.	Low Risk.	Unclear Risk
<i>States whether attrition and exclusions occurred; numbers and reasons for attrition/exclusion in each intervention group compared to total randomised participants; adjustments to data analysis.</i>	<i>No data lost to follow-up.</i>	<i>No reports of adjustments to statistical analysis to account for missing data reported.</i>	<i>Missing data not explicitly referred to in text. Unlikely data is missing.</i>	<i>No data lost to follow-up</i>	<i>Missing data reported and analysis adjusted to account for data loss.</i>	<i>Missing data reported and analysis adjusted to account for data loss.</i>	<i>Missing data reported and analysis adjusted to account for data loss.</i>	<i>Missing data not explicitly referred to in text. Unlikely data is missing.</i>
Risk of Reporting Bias	High Risk	Low Risk	Low Risk	Low Risk	High Risk	Low Risk	High Risk	High Risk
<i>Reports all quantitative data.</i>	<i>Selective data reporting.</i>	<i>No evidence of selective outcome reporting.</i>	<i>No evidence of selective outcome reporting.</i>	<i>No evidence of selective outcome reporting.</i>	<i>Selective outcome reporting.</i>	<i>No evidence of selective outcome reporting.</i>	<i>Selective data reporting.</i>	<i>Selective data reporting.</i>

Overview of Interventions

Table 3 presents a summary of the main characteristics of the intervention protocols reviewed.

Intervention Delivery

The intervention setting was not typically reported. It was inferred that these were delivered in a medical or university setting. Only that evaluated by Levy et al. (2010) and Levy et al (2013) explicitly referred to setting. Their participants were offered a home option and this was chosen by 28% of participants.

Only two of the eight studies evaluated group interventions. Both delivered interventions to children and parents separately. In the protocol evaluated by Groß and Warschburger (2013) children met on a weekly basis for six sessions, in groups of 3-6, whereas parents attended a single meeting collectively. The other involved four sessions, two attended by children and two by parents, meeting on alternate weeks over a four week period (Gulewitsch et al., 2013). The remaining studies evaluated individual interventions. Time period of delivery varied across studies. Some reported meeting monthly (Duarte et al., 2006), twice monthly (Robins et al., 2005), approximately weekly, spanning a range of 3 – 8 weeks, (Levy et al., 2010; Levy et al., 2013; Sanders et al., 1994) or for a varied duration according to individual need (Finney et al., 1989).

Psychologists, or psychotherapists, delivered the majority of interventions (Finney et al., 1989; Groß and Warschburger, 2013; Gulewitsch et al., 2013; Levy et al., 2010; Levy et al., 2013; Sanders et al., 1994). However, the precise nature of their qualification was not typically specified. The remaining interventions were delivered by a non-specialist

Paediatrician (Duarte et al., 2006) or alternatively a pre- or post- doctoral researcher (Robins et al., 2005).

Adherence to the intervention protocol was monitored for three studies. The study conducted by Robins et al. (2005) included a meeting of researchers, including the individual delivering the intervention, to review the previous session and discuss implementation. Levy et al. (2010) and Levy et al. (2013) report on the same intervention in which an experienced intervention trainer assessed a sample of audio recordings to assess for conformity to the protocol.

Aims of Interventions

The aims of the interventions are reported in detail in Table 3. Aims varied across studies but were broadly understood as reducing pain reports, improving daily functioning (i.e. improving quality of life, reducing impairment and promoting coping skills), altering parental influences (i.e. attitudes and/or behavioural responses) or providing education and support.

Outcome Variables

Outcome variables were labelled as primary or secondary in some, but not all, studies. When specified, the number of primary outcome variables ranged from three (Levy et al., 2010; Levy et al., 2013; Robins et al., 2005) to six (Gulewitsch et al., 2013) and included assessment of pain, somatic symptoms or impairment. Variables considered secondary were inconsistent but included quality of life, pain cognitions, anxiety, depression, school attendance or frequency of contact with physicians. Only two studies assessed systemic

variables, specifically parental behaviour (Levy et al., 2010; Levy et al., 2013) and beliefs (Levy et al., 2010).

Outcome variables were assessed using different tools across each of the interventions, with the exception of the 'Pain Dairy' tool used across three studies (Groß & Warschburger, 2013; Gulewitsch et al., 2013; Sanders et al., 1994) and versions of the KINDL-R (Ravens-Sieberer & Bullinger, 1998) used across two (Groß & Warschburger, 2013; Gulewitsch et al., 2013). Table 3 outlines the measures used to assess pain, functioning and systemic variables. The majority of studies commented on reliability and validity, with the exception of Duarte et al. (2006) and Finney et al. (1989). However, the theoretical basis for selecting outcome measures was reported thoroughly by only two studies (Groß & Warschburger, 2013; Gulewitsch et al., 2013) With the exception of Finney et al. (1989) all studies included outcomes based on direct reports from the child, in addition to indirect reports from other sources such as parents, school or medical records. However, not all studies included parental reports of pain related variables.

Content of Interventions

Information regarding the specific content of interventions was reported across studies. The level of detail reported varied. However, the majority of studies provided sufficient information to allow basic replication with the exception of Finney et al. (1989) and Levy et al. (2013). However, content is reported in Levy et al. (2010) and the authors refer to this paper as a source of further information. Only Finney et al. (1989) tailored delivery of the intervention to individual need.

Comparison conditions were implemented for all studies. Five studies included allocation to an active condition such as standard medical care (Duarte et al., 2006; Robins et al.,

2005; Sanders et al., 1994) or educational support (Levy et al., 2010; Levy et al., 2013). Of note was the variation in the content of ‘standard medical care’ seen across studies. For some this intervention aimed to be standardised, but for Robins et al. (2005) was tailored to individual need. The remaining studies allocated participants to a waiting-list (Groß and Warschburger, 2013; Gulewitsch et al., 2013) or utilised the details of an untreated sample based on medical records (Finney et al., 1989).

Theoretical Basis of Interventions

All studies made reference to the theory providing the basis for the intervention protocol. However, the comprehensiveness varied, with some authors making only minimal reference to the literature throughout (Finney et al., 1989) or making limited reference to theory in the introduction (Gulewitsch et al., 2013; Levy et al., 2010). Principal theories reported included cognitive behavioural theory (Duarte et al., 2006; Groß and Warschburger, 2013; Gulewitsch et al., 2013; Levy et al., 2010; Levy et al., 2013; Robins et al., 2005; Sanders et al., 1994) social learning theory (Levy et al., 2010; Levy et al., 2013; Robins et al., 2005; Sanders et al., 1994) or behavioural theory (Finney et al., 1989; Gulewitsch et al., 2013; Sanders et al., 1994) and hypnosis (Gulewitsch et al., 2013).

Table 3. Main Characteristics of the Intervention Protocols

Author(s) and Year (Country)	Intervention	Aim	Theoretical Basis	Format	Key Characteristics and Session Content
Duarte et al. (2006) (Brazil)	Cognitive Behavioural Family Intervention	<ol style="list-style-type: none"> To reduce awareness and perception of pain. To alter the attitudes which contribute to the development, maintenance and worsening of pain. To further knowledge and provide support. 	<p>Cognitive techniques thought to lessen pain by stimulating “endogenous opioid and non-opioid pain suppressing system” (p60).</p> <p>Behavioural techniques alter physiological mechanisms, which decrease abnormal sensory inputs in the pain perception pathway responsible for pain.</p>	<p>Individual intervention.</p> <p>Intervention delivered by a General Paediatrician.</p> <p>4 monthly sessions Each session 50 minutes</p>	<p>Parents and children given information regarding:</p> <ul style="list-style-type: none"> The relationship between the central nervous system, motility and the digestive system. Pain behaviour, explaining this as a learned social response. The role of triggers. Ways to stop “compensatory posturing to gain rewards” The cognitive-behavioural approach to treatment <p><u>Cognitive Components included:</u></p> <ul style="list-style-type: none"> Thought-stopping Distraction techniques Imagination techniques <p><u>Behavioural Components included:</u></p> <ul style="list-style-type: none"> Operant behaviour strategies Physical exercise Relaxation <p><u>Education and Support:</u></p> <ul style="list-style-type: none"> Information regarding the: genuine but non life-threatening nature of the pain; ‘functional’ health difficulties and possible causes; consequences of

					attempting to mask it due to the possibility of an organic cause.
Standard Paediatric Care		1. To further knowledge and provide support.	Control condition	Individual intervention. Intervention delivered by a General Paediatrician. 4 monthly sessions Each session 50 minutes	<u>Education and Support:</u> <ul style="list-style-type: none"> Information regarding the: genuine but non life-threatening nature of the pain; 'functional' health difficulties and possible causes; consequences of attempting to mask it due to the possibility of an organic cause. <u>Further support:</u> <ul style="list-style-type: none"> Advice given regarding diet, "intestinal parasite paraphylaxis" (p61) and averting accidents. <u>Further assessment:</u> <ul style="list-style-type: none"> Ophthalmic assessment
Finney, Lemanek, Cataldo, Katz and Fuqua (1989) <i>(USA)</i>	Multi-Component Targeted Therapy protocol	<ol style="list-style-type: none"> To teach children to observe and note the frequency and intensity of episodes of pain. To reduce attention given by parents in response to pain. To teach relaxation as an alternative coping strategy. To increase fibre 	Intervention techniques based on previous case studies demonstrating positive benefits of behavioural intervention.	Individual intervention. Intervention delivered by a Psychologist. Format (including number and duration of sessions)	Protocol included a range of the following: <u>Self-monitoring:</u> <ul style="list-style-type: none"> Child recorded severity and duration of pain in a diary. Parent recorded frequency of discussions relating to pain Diaries were reviewed during each session.

		content of diet. 5. To promote everyday activity.		tailored to each individual.	<p><u>Limited reinforcement of illness behaviour:</u></p> <ul style="list-style-type: none"> Parents asked to limit discussions of pain to twice per day. Content of discussions restricted to frequency and severity of pain. <p><u>Relaxation training:</u></p> <ul style="list-style-type: none"> Children taught to use a relaxation audio programme including progressive muscular relaxation and breathing exercises, in addition to a specific relaxation routine to use as a coping strategy when required. <p><u>Dietary fibre supplementation:</u></p> <ul style="list-style-type: none"> Children prescribed 5-10g of fibre per day. <p><u>Participation in routine activities:</u></p> <ul style="list-style-type: none"> Attendance at school was compulsory, irrespective of pain. Children were allowed to miss social activities, except those with the family.
Groß and Warschburger (2013) (Germany)	Cognitive Behavioural Pain Management Programme	To enable children to manage their pain independently by: <ol style="list-style-type: none"> Providing psycho-education and teach coping strategies. 	Intervention rationale based on previous studies which have shown a reduction in pain using cognitive-behavioural techniques. Role of parents supported by	Group intervention (3-6 children per group). Intervention	Group sessions for children included: <ul style="list-style-type: none"> Identifying triggers Understanding the relationship between stress and abdominal pain. Relaxation training

		<ul style="list-style-type: none"> 2. Teaching relaxation techniques. 3. Identifying and altering negative cognitions and attentional bias relating to pain. 4. Teaching techniques for promoting self-esteem. 	previous research.	delivered by a Psychologist.	<ul style="list-style-type: none"> (progressive muscular relaxation; PMR) • Cognitive restructuring • Distraction techniques; Identifying unhelpful behaviours • Developing self-esteem; improving coping
				6 weekly sessions. Each session 90 minutes.	Homework assignments involved PMR at home using CD.
				1 session for all parents (duration unknown).	<p>Session for parents:</p> <ul style="list-style-type: none"> • Dietary information provided • Explanation of the role of operant mechanisms in aggravating pain. • Discussion of current pain management strategies used.
Gulewitsch, Müller, Hautzinger and Schlarb (2013) (Germany)	Brief Hypnotherapeutic-behavioural Intervention	<ul style="list-style-type: none"> • To increase wellbeing • To increase capability to be “brave” (p1044) • To increase capability to handle pain by “closing the pain gate” (p1044) 	Intervention rationale based on previous research which has shown cognitive-behavioural therapy and hypnotherapy to be effective.	Group Intervention (4-7 families per group). 4 weekly sessions. Each session 90 minutes. 4 group sessions were delivered to children (2 sessions) and	Intervention protocol was manualised. <u>Content of Child Sessions:</u> <ul style="list-style-type: none"> • Use of standardised hypnotic trances in addition to promoting relaxation and use of imagination. • Education regarding the relationship between stress and abdominal pain. • Homework task – practice trances from CD at least 5 times per week for 15-20 minutes.

			visceral sensitivity” (p1048). Use of behavioural techniques based on operant conditioning theory, proposing the role of parental response in determining child behaviour.	parents (2 sessions) separately on alternate weeks. Intervention delivered by Psychologist.	<u>Content of Adult Sessions:</u> Information regarding: <ul style="list-style-type: none"> • Functional gastrointestinal disorders and their relationship with stress and anxiety. • Information regarding identifying triggers. • Positive educational approaches relating to operant learning, with respect to secondary gains.
Levy et al. (2010) (USA)	Social Learning and Cognitive Behavioural Therapy	<ul style="list-style-type: none"> • Reduce gastrointestinal pain, symptoms and impairment. • Reduce anxiety and depression • Increase adaptive pain behaviour and cognitive coping skills. 	<p>Intervention rationale based on previous research which has shown children of parents who respond solicitously to their child’s report of pain and who report abdominal problems themselves (modelling illness behaviour) report more abdominal pain.</p> <p>The beliefs held by parents and children regarding the significance of the pain and methods of coping also influence pain reporting.</p>	<p>3 individual sessions, at approximately weekly intervals. Each session 75 minutes.</p> <p>Therapist delivered (Master’s Degree or higher qualification)</p> <p>Therapist spent time with: parent and child</p>	<p>3 Intervention Components:</p> <ul style="list-style-type: none"> • Relaxation training. • Adapting family responses (child & parent) to health behaviours. • Cognitive restructuring. <p>Overview of 3 sessions:</p> <ol style="list-style-type: none"> 1. Explanation of treatment rationale; assessment of difficulties; teaching relaxation training; introducing concepts of “social learning, modelling and reinforcement” (p4). 2. Homework review; explanation of rationale for addressing cognitions; taught technique to identify and

				(60% time), child only (20%) and parent only (20%) during each session.	3. Homework review; reviewing skills learnt; development of plan for future utilisation of skills; opportunity to ask questions.
Education Support	To provide education regarding: <ul style="list-style-type: none"> • The gastrointestinal system and functioning. • Nutritional guidelines published by US Department of Agriculture. • General support with food i.e. understanding food labelling. 	Control condition to match intervention for “therapist and patient time and attention” (p5).	3 sessions, at approximately weekly intervals. Each session 75 minutes.	Therapist spent time with: parent and child (60% time), child only (20%) and parent only (20%) during each session.	3 intervention components: <ul style="list-style-type: none"> • Introduction and rationale for treatment protocol • Assessment of difficulties • Education
Levy et al. (2013) (USA)	Same as Levy et al. (2010).	Same as Levy et al. (2010).	Same as Levy et al. (2010).	Same as Levy et al. (2010).	Same as Levy et al. (2010).
Robins, Smith, Glutting and	Cognitive Behavioural Family	<ul style="list-style-type: none"> • Reduce abdominal pain. • Reduce child 	Intervention rationale based on Social Learning Theory advocating the role of family	Total of 5 sessions (approximately	Intervention adhered to a protocol but was delivered flexibly to meet individual need.

Bishop (2005) (USA)	Intervention + Standard Medical Care	<ul style="list-style-type: none"> • somatization. • Reduce functional disability. • Reduce number of visits to doctor. • Reduce number of school absences. 	environment and parental behaviour, such as modelling and reinforcement, in leading to and maintaining poor pain management in children.	<p>2 individual sessions per month)</p> <p>Each session 40 minutes.</p> <p>Delivered by postdoctoral fellow or pre-doctoral psychology intern.</p>	<p>Content of each session:</p> <ol style="list-style-type: none"> 1. Child and Parent – understand child’s pain; develop techniques to cope with pain; further understanding of the relationship between stress and pain. 2. Child – develop techniques to cope with pain; support child to learn how to manage pain. 3. Child – recognise positive and negative self-talk and understand its influence on pain. 4. Child and Parent – facilitate collaboration between child and parent in coping with pain. 5. Child and Parent – evaluate and support progress.
	Standard Medical Care	<ul style="list-style-type: none"> • To assess difficulties and provide support. 	Standard medical practice to address physical symptoms.	<p>As required by each individual.</p> <p>Delivered by individual’s doctor.</p>	<p>Individually tailored appointments with doctor:</p> <ul style="list-style-type: none"> • Education • Support • Nutritional advice • Medication, if appropriate.

<p>Sanders, Sheperd, Cleghorn and Woolford (1994) <i>(Australia)</i></p>	<p>Cognitive Behavioural Family Intervention</p>	<ol style="list-style-type: none"> 1. Reduce child's pain. 2. Reduce relapse following treatment. 3. Reduce extent to which pain interferes with daily life. 	<p>Rationale based on Social Learning Theory advocating the role of parental behaviour, such as modelling and reinforcement, in leading to and maintaining poor pain management in children.</p> <p>Recurrent abdominal pain (RAP) is also linked to poor coping skills.</p> <p>Operant and cognitive behavioural models of pain suggest parents play an important role in influencing pain management through modelling and reinforcement.</p>	<p>6 individual sessions (child and mother attended all sessions together).</p> <p>Each session 50 minutes.</p> <p>Intervention delivered over 8-week time-period.</p> <p>Delivered by psychologist.</p>	<p>All children underwent a medical assessment prior to intervention to allow for "functional analysis" of pain reported (p8).</p> <p>Protocol comprising 3 sections:</p> <ul style="list-style-type: none"> • Explanation of RAP and rationale for pain management procedures. • Contingency management training for parents • Self management training for children <p>Outline of Sessions – verbal and written information presented throughout; demonstrations of techniques within the sessions; weekly homework assignments:</p> <ol style="list-style-type: none"> 1. Session 1: discuss assessment outcome; outline theoretical basis for pain management techniques. 2. Parental training to: reinforce child's positive behavioural responses; utilise distraction with child during pain or promote engagement in alternative behaviours; ignore non-verbal expressions of pain; distinguish RAP from other physical health problems.
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				<ol style="list-style-type: none"> 3. Taught coping skills (i.e. breathing, PMR) 4. Same as session 3. 5. Same as session 3 6. Relapse prevention – children taught problem solving approaches to manage pain.
Standard Paediatric Care (SPC)	<ul style="list-style-type: none"> • To provide support and advice. 	Standard medical practice to address physical symptoms.	<p>4-6 sessions</p> <p>Delivered by Paediatric Gastroenterologist.</p> <p>Intervention delivered over 8-week time-period.</p>	<p>3 intervention components:</p> <ol style="list-style-type: none"> 1. Providing reassurance trivial nature of the pain. 2. Encouraged a modest response to pain i.e. not reacting disproportionately to pain but encouraging child to continue with daily activities. 3. Provide a supportive and non-critical space.

Evaluations of Interventions

The efficacy of the interventions will be evaluated in turn according to their theoretical basis. However, irrespective of shared theoretical foundations, each study evaluated a distinct intervention protocol, with the exception of Levy et al. (2010) and Levy et al (2013) and across studies different outcome measures were used to assess each variable.

Only Groß and Warschburger (2013) and Gulewitsch et al (2013) compared their intervention group to a wait-list control group (WLCG). All other studies included a comparison group completing a different intervention protocol, such as educational support (ES), with the aim of controlling for therapist contact (Levy et al., 2010; Levy et al., 2013) or, as is the case for the remaining studies, allowing evaluation of the intervention in comparison to the typical treatment protocol, standard medical care.

Efficacy of Cognitive-behavioural Interventions

Six studies reported on interventions based on this theoretical orientation (Duarte et al., 2006; Groß & Warschburger, 2013; Levy et al., 2010; Levy et al., 2013; Robins et al., 2005; Sanders et al., 1994). Only the intervention protocol evaluated by Levy et al. (2010) and Levy et al (2013) explicitly referred to Social Learning (SL) theory in the title, in addition to CB theory. However, other studies referred to SL theory when explaining the rationale (Robins et al., 2005; Sanders et al., 1994). Outcome measures were assessed across varying time-points, including baseline to three months (Groß & Warschburger, 2013), baseline to six months (Levy et al., 2010), baseline to 6-12 months (Robins et al., 2005) and baseline to 12 months (Levy et al., 2013; Sanders et al., 1994).

Pain

All studies included a measure of pain and all interventions reported to have a positive effect. However, the follow-up time varied across studies and there was also no consistency in outcome measures used.

Three studies used child reports. Sanders et al. (1994) concluded that significantly more children in the intervention group (IG) were pain-free immediately and six months following intervention based on visual analogue scales (VAS). However, this effect did not persist to the 12-month follow-up assessment but levels of relapse and pain interference in daily life was significantly less. Also using VAS, Duarte et al. (2006) described significantly greater decrease in pain frequency in the IG across assessments. However, pain intensity for IG remained stable and did not differ significantly from the CC. Sensitivity to pain also failed to differ significantly between groups. Groß and Warschburger (2013) used pain diaries to show a significant reduction in frequency, duration and intensity of pain for the IG when assessed from baseline to 3-months post-intervention. This was not seen in the CC.

Three studies utilised both child and parent reports. Using the 'Faces Pain Scale' (FACES; Hicks, von Baeyer, Spafford, van Korlaar & Goodenough). Levy et al. (2010) reported a greater reduction in pain in the IG, according to parental reports, at 6-month follow-up compared to baseline. However, child reports showed no significant effect of the intervention. However, at 12-month follow-up, both parent and child reports showed a significant decrease in pain from baseline (Levy et al., 2013). Robins et al. (2005) used the Abdominal Pain Index (API; Walker, Smith, Garber & Van Slyke, 1997) to demonstrate significantly less pain in the IG 3 months and 6-12 months following intervention.

Daily Functioning

Four studies reported outcomes assessing aspects of daily functioning. One study (Groß & Warschburger, 2013) assessed pain-related impairment using the KINDL-R (Ravens-Sieberer & Bullinger, 1998). Three studies (Levy et al., 2010; Levy et al., 2013; Robins et al., 2005) assessed impairment using the Functional Disability Inventory (Walker & Greene, 1991). Only Levy et al. (2010) evaluated psychological functioning using the Child Depression Inventory (CDI; Kovacs, 1981; 2003) and the Multi-dimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings & Conners, 1997).

Groß and Warschburger (2013) showed that child reports of pain-related impairment significantly reduced for those in the IG, not the CC (a wait-list control group; WLCG), from baseline to three month follow-up. Levy et al. (2010) reported that the IG and CC (an educational intervention), both showed an improvement, with no significant difference between or within-groups across time. Levy et al. (2013) confirmed no significant difference six months later when assessing one year afterwards. Robins et al. (2005) also failed to show a significant difference in child reports of impairment between the IG and CC, or within groups, over time. Child reports of depression and anxiety did not differ significantly between the IG and CC at any follow-up point (Levy et al., 2010).

Robins et al. (2005) was the only cognitive-behavioural intervention study to consider school attendance and visits to the doctor, using data drawn from school and medical records. However, there was no significant difference between the data reported for the IG and CC.

Systemic Outcomes

Two studies evaluated the effect of the intervention on systemic outcomes independently of other variables, both reporting on the same intervention protocol (Levy et al., 2010; Levy et al., 2013). Parental solicitousness ('Protectiveness' subscale of 'Adults Responses to Children's Symptoms' scale; Walker, Levy & Whitehead, 2006) was assessed. Levy et al. (2010) reported that parent self-reports of solicitous behaviour in the IG showed significantly greater reduction consistently one week, three months and six months following treatment, compared to the CC. However, this reduction did not remain in the longer-term, as there was no significant difference between the IG and CC at the 12-month follow-up (Levy et al. 2013). Parental perceived threat in respect to their child's abdominal pain was assessed using the Pain Beliefs Questionnaire (PBQ; Walker et al., 2008; Walker et al., 2005). Significantly greater reductions were seen in the IG in comparison to baseline scores at one week, three months, six months (Levy et al., 2010) and 12 months (Levy et al., 2013) following the intervention. The CC also showed a significant reduction at 12 months, albeit a smaller effect size. However, the difference between groups at 12 months was significant, suggesting the intervention was effective.

Efficacy of Hypnotherapeutic-behavioural Intervention

Only Gulewitsch et al. (2013) reported on a hypnotherapeutic-behavioural intervention. Outcomes were assessed at two time-points – baseline and two months following the intervention.

Pain

Utilising child pain diaries, the intensity, frequency and duration of pain was evaluated, in addition to parental ratings based on z-scores obtained using the API (Walker, Smith,

Garber & Van Slyke, 1997). Both child and parent reports of the IG showed significantly greater reduction in pain, across all measures, at the 2-month follow-up point in comparison to the WLCG.

Daily Functioning

This was evaluated using the Paediatric Pain Disability Index (P-PDI; Hübner et al., 2009). Both child and parent reports showed the intervention to bring about significantly greater reduction in disability at follow-up. Data regarding number of school absences was also recorded but was not reported by the authors or analysed due to the scarcity of absences occurring.

Efficacy of Multi-component Intervention

Only Finney et al. (1989) reported a multi-component intervention, primarily utilising behavioural techniques. All outcomes were assessed before and after receipt of the intervention, with the exception of ‘use of medical care’ which was compared to a gender matched comparison group attending the same medical clinic, but which was not part of the trial.

Pain

Pain was assessed using ordinal data based on parental ratings following intervention: worsened, unchanged, improved or resolved. Pain was rated improved or resolved by 81% of parents. However, pain was rated unchanged or worsened by 19% of parents.

Functioning

There was no significant change in the number of visits made to the school nurse as a result of the intervention. However, there was a significant reduction in number of school days absent. Also, in comparison to the untreated control group, the IG showed a significant reduction in the number of visits made to the health centre.

Clinical Significance of Reported Outcomes

Only two studies included a definition of a clinically significant response to the intervention. Groß and Warschburger (2013) defined this as no longer reporting complaints warranting a diagnosis of RAP. Immediately following intervention, this applied to 90.6% of IG in comparison to 9.4% of WLCG. Gulewitsch et al. (2013) defined this as 80% improvement in pain and reported that two months following intervention 55% of the IG 'responded', significantly more than the WLCG at 5.6%.

Parental Perspectives

Levy et al. (2010) asked parents to rate the competence of their therapist prior to the intervention. This did not differ significantly between the IG and CC. However, Sanders et al. (1994) investigated this more thoroughly, evaluating the importance of parental perceptions of the effectiveness of treatment prior to receipt. No significant difference was seen.

Discussion

Summary of Findings

The review aimed to identify the characteristics of psychological family interventions used in the treatment of children with functional gastrointestinal pain and assess their efficacy. After a systematic search of the literature, eight studies were identified. The majority employed an RCT design and evaluated interventions based on cognitive-behavioural theory delivered to children and/or parents individually. Alternative therapeutic protocols included hypnotherapy and behavioural approaches. Sample characteristics tended to include children in middle-childhood and typically included more females. Considering the results of all eight studies, there is support for the use of such interventions. Psychological family interventions, primarily cognitive-behavioural, produced short-term pain reduction and, to a degree, improved daily functioning. Such findings provide evidence of the importance of family interventions within the field of systemic practice, an approach that understands and addresses problems within the contexts in which they occur, rather than viewing difficulties as intrinsic to the individual (Skorunka, 2009).

All studies showed that cognitive-behavioural interventions were successful in lowering pain, with significant improvements for up to 12-months (Levy et al., 2013; Robins et al., 2005). Consistent evidence for the superiority of this approach was demonstrated using a variety of comparison conditions, including wait-list control, educational support and standard medical care. Yet, the influence of cognitive-behavioural interventions on functional wellbeing is generally less encouraging, levels of depression and anxiety being equivalent between the IG and CC (Levy et al., 2010). Although Groß and Warchburger (2013) showed improved functioning in the IG, two of the three cognitive-behavioural studies showed impairment to be equivalent in the intervention and comparison group

across all time-points (Levy et al., 2010; Levy et al., 2013; Robins et al., 2005). However, of particular interest are the results of Sanders et al. (1994). Although pain intensity (which had reduced significantly at six month follow-up) had not shown significant reduction compared to the comparison group at the 12 month assessment, its interference with daily activities was significantly less. This suggests that rather than eliminating the pain, the intervention equipped children to manage it more effectively. Enabling individuals to manage physical health difficulties independently is fundamental to ensuring the sustainability of health care provision, and is gaining increasing prominence (Adams, 2010).

Only one cognitive-behavioural intervention considered parental outcomes, the results suggesting that intervention is not effective beyond six months. (Levy et al., 2010). However, these results are not verifiable by any of the other studies. Of additional interest, Levy et al. (2010) and Levy et al. (2013) demonstrate discrepancies between parental and child reports, parental reports often describing more positive change. This is consistent with literature reporting discrepancies between the experiences of a child and the sense parents make of their presentation. Eminson (2007; p856) described parental reports as placing ‘a substantial filter’ on a child’s experience. The current findings advocate the importance of not relying solely on parent reports when assessing outcome.

Results for hypnotherapeutic-behavioural intervention are promising and the protocol itself has strengths, including group delivery and a short time frame (McRoberts, Burlingame & Hoag, 1998). Over 50% of the children, based on child and parent reports, showed a clinically significant improvement in their condition, with reductions in pain and impairment. However, since evidence for this intervention is presented in a single study, its

efficacy is not verifiable. Nonetheless, hypnotherapy is a highly effective treatment for functional gastrointestinal disorders in adults (Gonsalkorale, Miller, Afzal & Whorwell, 2003) and although research in children is less extensive, studies assessing child hypnotherapy in the absence of additional familial intervention components have shown positive outcomes in reducing functional abdominal pain, both short term (Vlieger et al., 2007) and longer term (Vlieger et al., 2012). This indicates further research into familial hypnotherapeutic-behavioural protocols would be valuable, though, future studies should make methodological adjustments to ensure scientific rigour. First, longer-term efficacy should also be assessed beyond a two month follow-up period. Second, the intervention protocol should be evaluated alongside a 'psychological placebo' condition. Not only does this control for therapist time and attention, but by virtue of being experienced as 'active,' it provides a more suitable comparison condition than a waiting list. In trials assessing the efficacy of CBT, assignment to the waiting list resulted in significantly inferior results than assignment to a placebo treatment (Furukawa et al., 2014). Wait-list conditions may actively elicit negative reports due to failure to instil hope and expectancy that positive change will occur (Bartels et al., 2014). Consequently, any comparison to a waiting list condition may lead to the intervention protocol appearing more successful than it is. Furthermore, inclusion of systemic measures as secondary variables would allow comment regarding potential causal mechanisms (Irvine et al., 2006), specifically the potential of systemic factors to bring about positive change (Langer, Romano, Levy, Walker & Whitehead, 2009).

While Finney et al. (1989) suggest that a multi-component approach is effective their methodological weaknesses were so extensive that the positive results could only be interpreted with caution. Importantly, the authors failed to implement a standardised

protocol. They also relied on indirect measures, which could significantly alter accuracy because, as explained previously, the reality of children's lived experiences may be different to those perceived by parents (Eminson, 2007).

Methodological and Design Issues

Importantly, the strength of conclusions drawn is substantially reduced due to the level of disparities within the reviewed literature, including variations in sample, methodological approach, intervention protocol and outcome variables. Overall, methodological quality of the studies was high, with poor to moderate quality primarily in papers published in the 1980's and 1990's. Detection bias was consistently low across studies suggesting that thorough blinding procedures were typically implemented. However, of concern is the reporting bias evident across 50% of the studies reviewed, indicating that it has not been standard practice to report all data obtained. This casts substantial doubt on the reliability of conclusions (Ioannidis, 2005; Dwan et al., 2008).

Most studies have implemented a RCT design. While this may initially be considered a substantial strength of the literature – RCTs are traditionally highly respected (Jadad & Enkin, 2007) as the gold standard when investigating treatments for functional gastrointestinal problems (Irvine et al., 2006) - RCT methodology for evaluating psychological interventions specifically, has recently been questioned (Morley, Williams & Eccleston, 2013). Some of the model's assumption, including that which sees treatment as the causal factor, are deemed incompatible with evaluation of psychological treatments. These are extremely difficult to standardise, even when implementing a manualised approach, and successful outcomes are heavily reliant on factors beyond those associated

with the treatment condition, such as an individual's readiness for change (Carey & Stiles, 2016).

Numerous limitations arise as a result of inconsistencies within the sample, which limits the external and internal validity of the results (Bordens & Abbott, 2008). Sample selection criteria vary substantially across studies. There may, therefore, be additional confounding variables affecting the intervention outcomes. For example, not all studies excluded children with a diagnosis of a psychological health problem or concurrently receiving additional treatment, such as medication. Sample size was also typically small, again increasing the likelihood of hidden confounders and the reporting of a false, significant effect (Biau, Kernéis & Porcher, 2008).

Recruitment methodology also represents a significant limitation of the data pool. First, no study has been able to validate the degree to which the sample was representative of children with functional abdominal pain. Second, implementation of volunteer sampling is likely to reduce the representative nature of the sample and lead to bias in the reported results, threatening internal and external validity (Callahan, Hojat & Gonnella, 2007; Ganguli, Lytle, Reynolds & Dodge, 1998). Those volunteering their children for interventions, whilst motivated by a desire to help, are more likely to exhibit help-seeking behaviours, be more eager to learn about their child's health problem and to find a solution to the problem (Harth, Johnstone & Thong, 1992; Harth & Thong, 1990; Rothmier, Lasley & Shapiro, 2003). Furthermore, the recruitment strategy was varied, with some studies relying solely on individuals referred subsequent to contact with medical services, or incorporating both referred patients and community volunteers. Consequently, multiple confounding factors may exist, both between- and within-studies, including motivation,

readiness to change and degree of impairment, which would be difficult to measure (Wakefield & Schmitz, 2010). Moreover, studies were conducted across Europe, Australia and North and South America, which may lead to amplification of variation across samples due to cultural factors influencing health beliefs (Edwards, Doleys, Fillingim & Lowery, 2001).

Inconsistency in use of outcome measures is a further hinderance to drawing firm conclusions. Five studies report utilising outcomes consistent with the recommendations made by the ‘Initiative on Methods, Measurements, and Pain Assessment in Clinical Trials’ (IMMPACT; McGrath et al., 2008). However, not all have assessed an extensive range of variables and the specific measurement tool often varies. Moreover, variables are measured in short time frames, typically 3-6 months. Consequently, conclusions are restricted to short-term effects of interventions, limiting understanding of long-term efficacy and subsequent development of theories accounting for the persistence of pain.

Surprisingly, only one study assessed for systemic changes, a variable which may help explain the absence of expected benefits in child pain and functioning outcomes, especially longer term. Moreover, parental demographic and clinical characteristics, which may, likewise, help in understanding the pattern of results, are rarely considered. For example, it has been suggested that greater levels of parental anxiety and somatisation, typical in children with RAP, may facilitate negative pain cognitions and exacerbate anxiety and symptom reporting in the child (Garber, Zeman & Walker, 1990; Walker, Garber & Greene, 1991). Notably, both studies that invited parent perspectives on the protocol,

namely therapist competence (Levy et al., 2010) and treatment expectations (Sanders et al., 1994), showed at least one positive outcome one year later. Since individuals are key agents of change in psychological interventions (Carey & Stiles, 2016), invitations for parental feedback may evoke more conscious awareness of hopes for a successful intervention and be a significant component in themselves.

Similarly, psychological wellbeing is a worthy variable for further study, given the psychogenic element of chronic pain and the fact that children report increased levels of affective problems (Palermo, 2000). Examination of these factors may throw light on specific mechanisms in the development and maintenance of pain and assist in choice of intervention.

Future Research

This review presents a summary of the efficacy of psychological family interventions but also identifies areas in which research is limited. In future, more attention must be paid to the guidance given in the PedIMMPACT statement (McGrath et al., 2008), regarding selection of outcome measures. It is recommended that greater consistency be implemented across future studies, primarily in terms of specifying primary variables (Irvine et al., 2006), but also in terms of the specific type of outcome measure used to assess each pain construct. Second, future studies should carry out longer-term follow-up evaluations in order for conclusions to be drawn regarding the long-term benefit and efficacy of family interventions. Third, there should be more widespread inclusion of secondary variables across studies. For example, many of the variables recommended by the PedIMMPACT statement (McGrath et al., 2008) were not addressed at all, such as sleep and economic factors, or were considered only rarely, such as psychological wellbeing. Additionally,

greater focus should be on understanding systemic variables considering the theoretical evidence for their role in childhood chronic pain difficulties. Research should prioritise the use of specified and valid measures of systemic processes within the family, such as the Adult Responses to Children's Symptoms scale (Walker, Levy & Whitehead, 2006) or Illness Behaviour Encouragement Scale (Walker & Zeman, 1992). This would allow for greater understanding of the potential mechanisms responsible for clinical change, and in turn would support the identification of demographic and clinical variables associated with positive outcomes. This is vital, considering that positive change, albeit to a significantly lesser extent than seen in the intervention groups, was at times evident in individuals exposed to psychological placebo conditions or waiting lists. However, the efficacy of family interventions as demonstrated by this review also attests to the value of systemic working and therefore emphasises the importance of continued research within this field in order to develop a robust and rigorous evidence base. Finally, future studies are uniquely placed to contribute to the development of treatment of functional abdominal pain by exploring the use of more flexible and accessible intervention protocols, such as those delivered at home, taking advantage of technological and internet advances. Staff would need specialist training, but such protocols promise increased self-management and could significantly lower financial costs for the health services.

Limitations of Review

The review provides a comprehensive overview of the eight family intervention studies. However, certain limitations exist. First, the search strategy stipulated that the reference to 'parent' (or appropriate synonyms relating to family) be referred to in the title or abstract, but was not searched for in the full-text of articles. Therefore, it is possible that some studies evaluating family interventions may have been omitted. Second, searches were

carried out using electronic databases and hand-searching bibliographies only. Therefore, the review may be subject to publication bias as only studies that had been published in a peer-review journal were sought and considered. Third, only papers published in English were considered for inclusion. Therefore, it is possible that studies evaluating this area reported in a different language may have been omitted. This may also deem it liable to publication bias. Fourth, study selection may have been exposed to bias as only one researcher conducted the literature search. Finally, not all measures of the papers reviewed were assessed as part of the evaluation of intervention efficacy. Priority was given to certain measures in an attempt to aid the identification of the principal outcomes of studies. This was necessary due to the extensive range of methodologies employed and outcome variables utilised. Measures of pain and functioning were chosen due to prominence in the guidelines for treatment trials assessing functional gastrointestinal disorders (Irvine et al., 2006; McGrath et al., 2008) and systemic outcomes were assessed due to the specific aims of the literature review. In future evaluation of any additional variables, such as pain-related cognitions and coping, might also be considered.

Conclusion

Systemic psychological interventions are effective at reducing pain and improving functioning in children with functional gastrointestinal difficulties. The majority of evidence supports the use of cognitive-behavioural approaches. Behavioural and hypnotherapeutic techniques have also been used, but the evidence for these approaches is limited. Although positive outcomes are reported as a result of systemic interventions, methodological weaknesses limit the strength of the positive conclusion that can be drawn regarding their efficacy. In addition, limited evidence exists to support longer-term benefits. More research specifically evaluating systemic psychological interventions for this

population is needed. Future research should seek to implement more robust and consistent research protocols, prioritising use of specified and valid measures of systemic processes, in addition to evaluating of the long-term benefits of interventions and understanding the variables associated with positive change.

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Part Two – Empirical Paper

Teachers' Beliefs and Perspectives: Medically Unexplained Symptoms in Children and the Role of Families.

*Stephanie Burchill¹ & Annette Schlösser¹

¹ Department of Psychological Health and Wellbeing, The University of Hull, Aire Building, Cottingham Road, Hull, United Kingdom, HU6 7RX

Tel: 01482 464106

Email: A.Schlösser@hull.ac.uk

*Corresponding author: Tel: 07502 506491; Email: s.r.burchill@2013.hull.ac.uk

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Abstract

Medically unexplained symptoms (MUS) such as stomach aches and headaches are common in children. Family environment has been shown to influence the development and maintenance of these complaints. However, recently the role of the teacher has gained prominence, teachers' response to pain reports influencing the child's management of recurrent pain. Due to relational links to both child and family, teachers hold a distinct position. Using Interpretative Phenomenological Analysis the study aimed to explore teachers understanding of MUS in children and families. Nine teachers recruited from the community participated in semi-structured interviews. Four superordinate themes and 11 subordinate themes emerged following analysis. Themes suggest teachers understand MUS within a biopsychological framework involving making sense of the child and the self within the context of relationships with parents and colleagues. Somatic symptoms were understood within a psychodynamic framework or behavioural context. Implications of the findings are discussed, alongside directions for further research.

Keywords: teachers; medically unexplained symptoms; children; families; interpretative phenomenological analysis

Introduction

Medically Unexplained Symptoms (MUS) are a significant problem within the child population (Basch, Chow, Logan, Schechter and Simons, 2015). Often referred to as 'functional' or 'psychosomatic', due to the absence of a physical explanation, most commonly reported symptoms include headache, stomach ache and musculoskeletal pains (Vanaelst et al., 2012). Recurrent and unexplained headaches are experienced by 8-83% of children, abdominal pain by 4-53% and musculoskeletal pain by 4-40% (King et al., 2011). Despite wide variation in reports, evidence suggests that unexplained, physical health complaints are commonplace in children (Vila, Kramer, Obiols, and Garralda, 2012). Children reporting MUS experience a substantial reduction in quality of life (van der Veek, Nobel and Derkx, 2012) and a greater prevalence of psychological health difficulties, including anxiety and depression (Walker, Garber and Greene, 1993). Moreover, MUS may negatively affect the wider social and educational world of the child, causing reduced school attendance and poorer educational attainment; sufferers often struggling to cope with the rigour of the academic setting (Hughes, Lourea-Waddell and Kendall, 2008).

A biopsychosocial model of recurrent pain in children has been proposed, in which pain is explained according to the presence and interaction of individual and systemic factors within the biological, psychological and social domains (Engel, 1977; Vetter, McGwin, Bridgewater, Madan-Swain and Ascherman, 2013). Prominent variables include individual characteristics such as pain cognitions and behaviours, psychological wellbeing, physiological wellbeing and environmental context such as life events, stressors and relationships with significant others (Kozłowska, Rose, Khan, Kram, Lane and Collins, 2008).

The significance of psychosocial variables in explaining MUS in children is undisputed (Eminson, 2007), with family context considered a significant determinant of a child's health and wellbeing (Bronfenbrenner, 1986; Rohde et al., 2015). Interactions with care figures within these environments is thought to contribute to the child's understanding of, and attitude towards, pain, subsequently determining a child's behavioural expression and pain management (Meldrum, Tsao and Zeltzer, 2009; Miro, Huguet and Nieto, 2007). Social Learning Theory (Bandura, 1977) could account for the process by which children adopt behaviours, modelled and reinforced by others around them (Palermo, Valrie and Karlson, 2014). Physical health difficulties are greater in children whose parents have physical and psychological problems (Walker and Greene, 1989). Also, parents exert significant influence on children, through their own beliefs regarding pain and illness. For example, children with recurrent pain experience increased parental encouragement of illness behaviours (Walker, Garber and Greene; 1993), while children experience more somatic symptoms and increased functional disability when parental response to pain is overly protective (Simons, Claar and Logan, 2008; Walker, Claar, and Garber, 2002) because it positively reinforces the expression of the pain behaviour (Simons, Claar and Logan, 2008).

The school environment is a significant source of psychosocial stressors (Eminson, 2007) and is now recognised as having a clear role in promoting child wellbeing, as part of its basic duty of care (Public Health England, 2015). Subsequently, there is an increased expectation that teachers will be directly involved in promoting and monitoring both physical and psychological wellbeing (Department for Education, 2014; Department of Health, 2015). Research has shown that teachers' actions and attitudes are a significant factor in determining children's experience of pain and that

the manner in which teachers respond to complaints contributes to how well a child is able to manage their difficulty (Logan, Catanese, Coakly and Sharff, 2007). According to Vervoort, Logan, Goubert, Clercq and Hublet (2014), children who perceive their teachers to be more supportive, understanding and encouraging suffer reduced detrimental effects in terms of academic achievement and attendance. Coupled with the growing responsibility of educational professionals to monitor and promote wellbeing, understanding the sense teachers make of child pain reports is important.

The experiences and beliefs of education professionals in respect to MUS have been explored in both qualitative and quantitative research. Logan, Catanese, Coakley and Scharff (2007, p253) utilised vignettes within a quantitative framework to demonstrate that they hold a 'dualistic' model of pain, viewing it dichotomously as either physical or psychological. However, a more recent qualitative exploration using focus groups claimed that teachers understand pain within a biopsychosocial framework. This study also maintained that pain complaints were understood as an expression of life stressors. Teachers described themselves as having a role supporting children in managing pain, through developing strong interpersonal relationships with students and working alongside staff and parents (Rohde et al., 2015). The importance of collaborative working was also demonstrated in a similar study comprising teachers, administration staff and nurses. Thematic analysis showed professionals desired greater collaborative working, including input from medical professionals and asserted that managing chronic pain as teachers involves many challenges, including a sense of isolation and meeting the needs of the whole class (Logan and Curran, 2005). Finally, medical evidence and parental perspectives were shown to be most instrumental in determining teachers' perceptions of, and responses to, pain (Logan, Coakley and Scharff, 2007).

These studies have established a foundation of empirical evidence. However, there is scope for further investigation. Most significant is the lack of research into the lived experiences of teachers. As yet, no study has aimed to understand teachers' perspectives using Interpretative Phenomenological Analysis (IPA) an approach providing rich insight into how and why individuals think in the way they do within the context of their real-life experiences (Smith, Flowers and Larkin, 2009). Neither has there been research exploring teachers' experiences of MUS with respect to working with both the child and their family. Yet, teachers may be considered to be in an advantageous position in this regard given their relational links with both the child and family. Finally, teachers' beliefs regarding their professional role in respect to MUS has also not yet been thoroughly explored.

MUS in children affect a significant, and increasing, number of individuals. Due to the unique position of teachers in the lives of children, and opportunities for insight into the wider family context, it is important to explore their experiences. Therefore, this study aims to address the following questions:

1. How do teachers experience MUS within their professional role?
2. How do teachers understand MUS in the children and families they work with?
3. How do teachers understand their role in relation to MUS?

Method

Design

Interpretative Phenomenological Analysis (IPA) was chosen to complement the exploratory nature of the study. This enabled an examination of a rich pool of data relating to teachers' lived experiences, illuminating the way in which the individual constructs and understands their experiences (Smith & Osborn, 2003). To maximize data collection, semi-structured interviews were used. These allowed space for reflection as well as flexibility in the choice of topics covered (Smith, 2004).

The interview schedule (Appendix 7) incorporated open questions and was developed to provide a framework for the interview. Additional exploratory questions were used as probes where necessary. A level of flexibility in the schedule afforded participants the opportunity to express, and explore with the researcher, their unique experiences (Smith, 1995). Teachers were invited to share their experience of MUS in general, and were encouraged to explore experiences relating to an individual child and family in-depth. Questions also sought to obtain perspectives on the processes by which MUS arise, are maintained and managed, and to the role of a teacher in relation to these difficulties.

The study was granted Ethical Approval from the Faculty of Health and Social Care's Ethics Committee at the University of Hull.

Participants

Nine teachers, recruited from the community, participated in the study. All participants were White British. The contribution of nine individuals to the data set was deemed sufficient to have achieved data saturation (Fusch & Ness, 2015). Recruitment was primarily via opportunistic sampling. Information about the study was shared via social

media and with the researcher's personal contacts (Appendix 8). Snowball sampling (Atkinson & Flint, 2001) was subsequently used, whereby individual participants recruited additional participants from amongst their own personal contacts. To be eligible to participate, teachers had to be employed or have previously been employed, in a British school on a full-time, part-time or supply basis. All participants had to be able to speak and read English fluently. Teachers were excluded if they had not worked in a school within the previous 2 years, to ensure that they were able to draw upon recent professional experiences.

All teachers were currently employed in Primary, Secondary or Specialist schools.

Demographic characteristics are presented in Table 1.

Procedure

Interested individuals who responded to information shared via social media, were asked to contact the researcher directly. However, due to the use of snowball sampling, the researcher also contacted some interested participants directly. Individuals who met the inclusion criteria were sent an electronic copy of the Participant Information Sheet (Appendix 9) and invited to ask any questions they had regarding participation in the study. Following confirmation of their wish to take part, arrangements were made.

Participants were given the opportunity to be interviewed face-to-face with the researcher at a mutually convenient time and location. All were given the choice to be interviewed at home, at the University of Hull or at their place of work. However, due to geographical constraints, one interview was conducted over the phone.

Table 1: Participant Demographics

Participant	Age	Pseudonym	Gender	Job Title (specialist subject area if specified)	Number of Years in Role	Type of Educational Setting
1	26 – 30	‘James’	M	Teacher	2 – 5	Primary School
2	31 – 35	‘Kate’	F	Teacher (Dance)	11 – 15	Secondary School
3	21 – 25	‘Samuel’	M	Teacher	≤ 2	Primary School
4	46 – 50	‘Michael’	M	Teacher	≥ 25	Primary School
5	31 – 35	‘Rebecca’	F	Teacher	6 – 10	Primary School
6	51 – 55	‘Anne’	F	Teacher (Art & Design)	≥ 25	Secondary School
7	61 – 65	‘David’	M	Teacher	21 – 25	Secondary School
8	41 – 45	‘Jenny’	F	Teacher	21 – 25	Specialist School (16- 18 years)
9	31 – 35	‘Laura’	F	Senior Teacher (Literacy)	6 – 10	Secondary School

At interview, participants were given the opportunity to re-read the Participant Information Sheet and to ask any further questions. Prior to the start of the semi-structured interview, written informed consent was obtained (Appendix 10). The participant then completed the Demographic Information Sheet (Appendix 11). All interviews were audio recorded. The average duration of the interview was 63 minutes (range = 39 – 95 minutes). Throughout the interviews the term ‘recurrent unexplained

physical health problem' was used, rather than MUS, in an attempt to minimise the potential for researcher bias. The descriptors 'medically' and 'symptoms' were considered to have a strong association with formal medical processes and consequently risk implying the need for a child to have received a diagnosis or to have particularly severe difficulties. In contrast, the term 'recurrent physical health problem' was considered to describe the fundamental nature of the problem being explored by the researcher, reducing the risk that participants' response be primed. Following completion of the interview participants were provided with information regarding support services if needed (Appendix 12).

Analysis

To ensure anonymity all participants were assigned a pseudonym. All interviews were transcribed verbatim and, following transcription, the text was analysed according to the guidelines outlined by Smith, Flowers and Larkin (2009). Analysis and interpretation was iterative and inductive, ensuring consistency with the idiographic approach of IPA, in which single transcripts were first analysed in detail, after which themes pertinent across participants were identified (Pietkiewicz & Smith, 2014). The researcher listened to the audio recordings, prior to reading the transcripts. The transcripts were then studied line-by-line, the researcher noting areas of particular interest or significance within the text. Exploratory comments were descriptive, linguistic or conceptual. Emerging themes were then noted and analysed alongside exploratory comments, with the aim of drawing connections between the patterns observed (see Appendix 13 for an example of coding). The approach to analysis accepts that the researcher's own beliefs and experiences will inherently influence the interpretation of the data. Consequently, analysis also involved regular reflection by the researcher upon their personal processes.

As a result, the final themes reflect both the participant's direct contributions and the researcher's own interpretation.

Quality and Validity

Validation of the final themes was achieved by ensuring all were consistent with the original, verbatim accounts of participants. To promote reliability of this process any uncertainty surrounding emerging themes was discussed and examined in detail with the second author. The results report the salient themes, which were those reflecting the accounts of the majority of participants. However, not all participants' data supported all reported themes, which is consistent with the idiographic process inherent to IPA (Smith, Flowers & Larkin, 2009). Through the use of introspection (Finlay, 2002) the researcher also engaged in a process of reflexivity to examine and acknowledge subjective interpretations of the data (See Appendix 30 for Epistemological Statement).

Results

Four superordinate and 11 subordinate themes emerged from analysis of the data.

Figure 1 illustrates the themes and the relationships between each. The Superordinate themes of 'Parents are Important' and 'Collaborative Working within School' were thought to represent the contextual factors relevant to both of the other superordinate themes 'Perception of the Child' and 'Perception of the Self as a Teacher.' All superordinate and subordinate themes will be described in detail. With the exception of 'This is what I do,' all subordinate themes were named based on participant's descriptions.

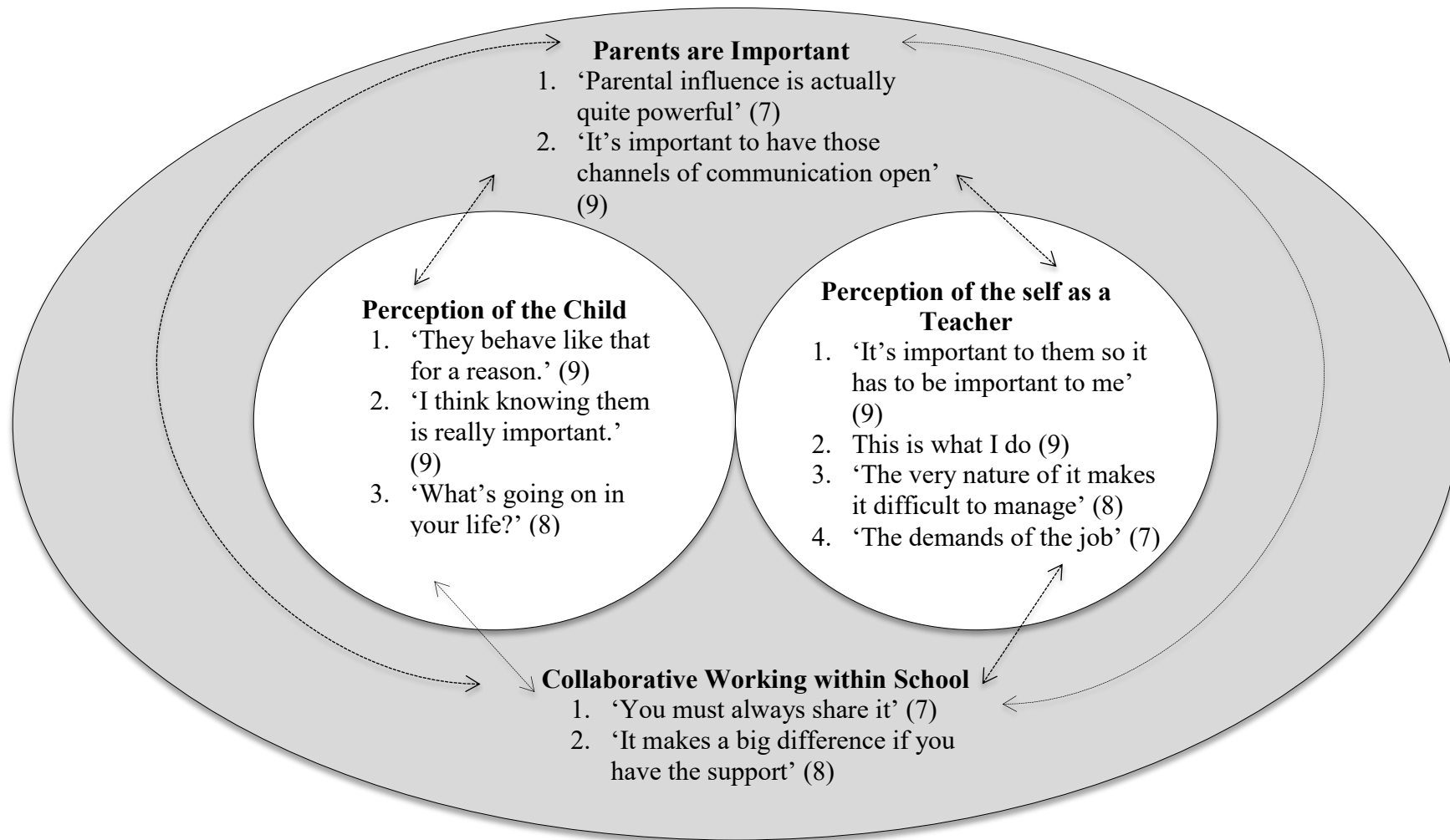


Figure 1: Model demonstrating the relationship between the superordinate and subordinate themes (Bronfenbrenner, 1986; Engel, 1977). The number of participants supporting each theme is given in parenthesis.

Perceptions of the Child

A principal theme related to how the teacher perceives and understands the child presenting with MUS. Three subordinate themes were identified.

1. 'They behave like that for a reason'

Across participants, presentations of MUS in children held a form of meaning. There was a strong sense that MUS are a genuine experience of physical illness or discomfort. However, they were not considered routine physical health problems but understood to represent an underlying psychological difficulty.

'If she's worried about something you can tell she's very in on herself. She will worry. She will get a stomach ache. Or whatever. And you can tell that actually it's a physical reaction to an emotion.' (Jenny; Lines 219 – 221)

Central to this understanding was the belief that expressing difficulties in this way was not intentional rather an attempt by the body to communicate unconscious or hidden experience.

'Stomachs almost seem to be more unconscious, because if you're worried about something you tend to clench up over it.' (Jenny; Lines 49 – 50)

'Somewhere along the line...it was as if her body was saying, 'this is the way I'm going to rebel.' (David; Lines 120 – 121)

However, for other children MUS represented an intentional strategy in which complaints were not genuine but used to achieve a specific agenda.

'Sometimes they're doing that as an excuse to cover the fact that they don't want to participate.' (Kate; Lines 49 – 50)

'I also wonder if...whether sometimes when she finds life and work a bit tricky she kind of goes 'oh, I've got a tummy ache'...' (Rebecca; Lines 252 – 253)

However, teachers' understood that even when used intentionally MUS have meaning, signally a desire for their attention and support.

'Really, what it was in some instances...was the student wanting to talk to someone about a particular anxiety that she had, but didn't really know how to frame the anxiety, really didn't know how to initiate the conversation and was throwing up this smokescreen.' (David; Lines 35 – 38)

2. 'I think knowing them is really important'

Making sense of MUS was strongly connected to knowing the individual child.

Participants felt that knowing their student enabled them to interpret the seriousness of a child's complaint.

'Yes, as you get to know the children more...maybe 90% of the time you know it's a genuine pain or illness that you need to do something about or if actually it's a big fuss over nothing.' (James; Lines 25 – 28)

'Knowing the child' was also important to understanding why the child was presenting with this difficulty, providing clues to the possible underlying cause.

'So a lot of my decisions are based on knowledge of that student...their personality, their aptitude, their willingness to learn, their physical ability, their home life, their behavioural patterns. So I'd take all of that into consideration...' (Kate; Lines 317 – 321)

The concept of maturity was repeatedly discussed, with students considered more emotionally mature seen as more able to manage internal experiences and therefore not reliant on physical complaints as a means of coping.

'Some students come in and cope really well... But some of the students really don't cope well with that transition. Sometimes they're still so young.' (Anne; Lines 166 – 172)

The other predominant characteristic participants associated with these children was poor confidence and low self-esteem.

'I think the big thing for this child is the confidence thing.' (Samuel; Line 106)
'She needs constant praise and reassurance that everything is ok.' (Jenny; Line 104)

3. 'What's going on in your life?'

The context of family life was also important. Participants acknowledged the association between parental relationships and subsequent reports or manifestation of illness.

'More often than not we are able to put those pieces together and understand and realise that a particular child is presenting with these problems and issues because of their home situation.' (Michael; Lines 319 – 321)

'I would say, in the majority of cases, it's the children that you suspect don't necessarily get that attention at home...' (James; Lines 194 – 195)

Yet, participants held a non-blaming and balanced view of the parents' potential role and on occasions no evidence of any problems in the family home were seen. However, it was notable that many participants were parents themselves.

'We say – bringing up young people is difficult and nobody's got all the right answers...' (David; Lines 273 – 274)

'... I think there are a lot of cases where there is something very minor that the children then make a lot bigger...Actually their home life's absolutely fine.' (Michael; Lines 321 – 323)

Participants also expressed a belief that the type of approach parents adopted when managing MUS was instrumental to determining their continued expression.

'Some parents are really good at saying 'actually they pull that trick a lot, just get on, don't make a deal of it, the more attention that we give it the worse it's going to be.' Other children, their parents are over sympathetic to them and so allow them to behave in that way.' (Kate; Lines 394 – 397)

Perception of the self as a Teacher

This superordinate theme related to how the teacher perceives and understands their own 'self' including the values they hold, the contextual factors influencing their role and the way in which they respond to MUS. Four subordinate themes were identified.

1. 'It's important to them so it has to be important to me'

The belief that children needed to be treated with warmth and kindness, regardless of the circumstances and context was prominent. Treating children in this manner was intrinsic to the way in which teachers' approached their role, indicative of personal values.

'I guess it's having a genuine care for their wellbeing... If you didn't care you wouldn't be very good at your job because teaching isn't just about giving them the skills to read and write and maths – it's very much the whole person, isn't it?' (Michael; Lines 293 – 297)

'Yeah you don't walk in, teach and leave. You have to make sure they feel safe, happy and everything's safe. So yeah, its just all part of the role I think.'
(Samuel; Lines 247 – 248)

Many participants reflected on their role as a parent, understanding this as important to how they view and respond to a child's behaviour, in particular their ability to empathise.

'You know, how I would treat them as a dad, if they came to me. It's almost the same thing, I would hope.' (Michael; Lines 193 – 194)

'Once you become a Mother you have more empathy because everyone is somebody's daughter or son.' (Anne; Lines 336 – 337)

2. This is what I do

Participants described a clear approach managing MUS. This was typically based on behavioural principles, emphasis placed on employing methods that reinforced and rewarded positive behaviours. However, an empathic approach to delivering behavioural methods was also shared.

'...[I] try and move on to the next thing and take their mind off it. Then within the next couple of minutes make sure you've come and said something positive to them about something different to take their mind off it and make them think – that's good – and try and change their mind-set a little bit...to almost pander to their negative thoughts would almost increase the problem... (James; Lines 211 – 216)

Teachers also described the importance of professional experience in helping them feel comfortable managing MUS. Learning from previous encounters with children seemed to be central to how teachers made sense of the issue and subsequently how they managed it.

'For me, experience. The more you deal with it the more confident you feel to deal with it. (James; Line 262)

'...I think that's an experience thing.... the more experienced you get the more, and the more you know children over the course of the time you have with them

as well, you kind of think 'no actually, that's just the way they are, it's just the way their personality is.' (Rebecca; Line 522 – 528)

3. 'The very nature of it makes it difficult to manage'

Some participants felt a sense of frustration when faced with MUS due to the additional pressure they place when already stretched in terms of resources. They acknowledged that this can make it difficult to be empathic.

'...when things like this are constantly reported to you it is occasionally quite hard to keep drumming up sympathy, when you know that actually there's nothing you can do...you can't do anything to make it better.' (James; Lines 109 – 111)

MUS also evoked a sense of powerlessness due to the inexplicable nature of the difficulties and the absence of tangible evidence of ill health.

'But again, it's very much a massive, grey area because you just don't know for sure what the problem is, how big the problem is.' (Michael; Line 170 – 171)

'Yeah, the hardest ones are...they're the tummy aches and the dizziness and the feeling sick. Because they're vague and I've got no way of being able to identify whether they're feeling better or not...' (Kate; Lines 436 – 438)

4. 'The demands of the job'

All participants shared a sense that teaching is no longer simply about facilitating learning. They described an expectation to fulfil multiple professional roles and to meet a range of needs beyond simply teaching.

'I feel I need a social worker qualification some days.' (Jenny; Lines 416 – 417).

'Yes, I think it's getting harder and harder to work out where the boundaries are for a teacher. It seems to blur between teacher, social worker, nurse – all sorts of things really.' (James; Lines 239 – 241)

The expectation to meet such a range of needs placed significant additional demands on teachers, at times leading to the experience of feeling bombarded.

'Sometimes I just think that I am fire fighting, I have to say. And as a teacher I am trying to deal with all those things and trying to be all things to all men sometimes.' (Anne; Lines 277 – 278)

Although supporting children with MUS was accepted as part of their role, the demands of the classroom make this challenging and impact on the way in which they carry out their job. Consequently, issues are prioritised and ultimately not all needs are met.

'And I think there's always a little bit of you in the back of your mind that thinks 'umm, is there more to this than meets the eye' but you just get so swept up in all the other business of the day and you kind of just have to let it go unless it kind of forces itself into your face cos you just, there's so many other things to think about...' (Rebecca; Lines 530 – 533)

Parents are Important

The centrality of parents in managing MUS was seen across participants leading to the development of this superordinate theme, incorporating two subordinate themes.

1. 'Parental influence is actually quite powerful'

Parents were seen to inherently adopt a powerful position. There was a belief that ultimately it is the parents who are in the position of being able to do something to alleviate the problem.

'...if it's a reoccurring problem and they haven't taken them to the doctor's, there's a limit to what more we can do because it really does fall, I feel, to the role of the parent then to pick that up.' (Kate; Lines 479 – 481)

However, this was balanced alongside the perception that parents' position of power can be beneficial as they are often able to shed light on what is going on for the child.

Teachers' were seen to respect the parent's viewpoint and follow the parents' lead.

'So, I think, maybe in cases where there isn't a diagnosis it's more important to provide guidance...I think it's important for parents to be involved.' (Laura; Lines 261 – 262)

'I'll know so much about school and a little bit about the background, but obviously the parents have a background so they can come in and let you know if it might be, if the child said something the night before about a spelling test or if we're doing writing can they not access the work, are they stuck, do they feel that they can't ask for help.' (Samuel; Lines 341 – 344)

2. 'It's important to have those channels of communication open'

Communication with parents was valued due to the clarity it brought to ambiguous situations, enhancing the care provided.

'What's helpful as a teaching professional is when you have good dialogue with the parents and they give you information that will help you....' (Kate; Lines 401 – 402)

'...if you don't have the relationship with the parents and have the triangle with the child, educating the child and caring for them can work but it is so much enhanced if you've got all three.' (Michael; Lines 213 – 215)

There was also a sense that parents could be pro-active contributors, seeking to work alongside teachers to provide support and offer reassurance regarding the trivial nature of the child's difficulty.

'...I had one parent come in, dropped her daughter off and said 'she's been saying she feels sick' but we had a spelling test that morning so mum had winked at me and said, or mouthed 'I think she'll be fine.' And then, lo and behold, she never complained once...' (Samuel; Lines 60 – 63)

Collaborative Working within School

Another dominant topic related to working in partnership with colleagues in school. This superordinate theme encompassed ideas relating to the importance of sharing information and peer support. Two subordinate themes were identified.

1. 'You must always share it'

There was a common belief that communication between colleagues was integral to understanding the child and informing their approach to supporting children with these difficulties.

'I guess within a secondary school setting there are more different levels and different people deciding different things. A lot of it relies on communication...communication's really important.' (Laura; Lines 319 – 321)

'...so long as information is not confidential it is most likely to be shared because you don't want to make silly remarks or challenge if someone has history...' (David; Lines 178 – 182)

2. 'It makes a big difference if you have the support'

Participants also expressed a belief in the importance of a collaborative approach to working with MUS, describing how this helps increase confidence when making decisions regarding the wellbeing of children. Working with other professionals was instrumental to providing support, but also ensured individuals maintained a degree of accountability and that they did not stray beyond the boundaries of their own competency.

'I feel very supported by my colleagues as and I think that makes a big difference if you have the support of peers...' (Kate; Lines 451 – 453)

'Well, I think one of the things you have to do is not be too proud and think you can solve everything...you always must share it with the senior manager or

someone else, so you're not off ploughing down a route of your own.' (David; Lines 338 – 341)

'I think the big thing with confidence is always to have someone you can refer to.' (Laura; Lines 341 – 342)

Teachers also described a process of peer learning through which their own approach to working with MUS had been influenced by examples of teaching practice they had witnessed in colleagues.

'For me, it was watching it done by more experienced colleagues...I think that's where any confidence I have in dealing with issues comes from. From seeing how they've done it and thinking – oh yes, I can say that as well.' (James; Lines 262 – 267)

'As you go up the career you learn things from others and see how they handle things and you watch and learn.' (Anne; Lines 391 – 392)

Discussion

This study explored the lived experiences of teachers working with children who present with MUS in school and their families. The specific objectives were to understand how teachers experience MUS, how they make sense of these difficulties and how they view their role in relation to them. Using IPA, the study captured the complexity of individuals' beliefs regarding these issues. Teachers' experiences were embodied within four superordinate themes labelled 'Perception of the Child,' Perception of the Self as a Teacher,' 'Collaborative Working within School' and

‘Parents are Important.’ A relationship between themes was identified and represented in a model (Figure 1). The themes presented within the model are representative across participants working within primary and secondary school settings, demonstrating convergence in the experiences of teachers. Such similarity suggests teachers’ perceptions and attitudes towards MUS are independent of the demands of each educational setting and provides evidence that the manner in which meaning is constructed is shared.

Central to teachers’ sense making process was a holistic perspective of the child, which incorporated an understanding of the child’s individual characteristics and internal experiences, the purpose and function of their symptoms and an appreciation of their external world. This view is consistent with a biopsychosocial model of pain (Engel, 1977; Vetter, McGwin, Bridgewater, Madan-Swain and Ascherman, 2013). Rohde et al. (2015) also showed teachers to hold this perspective emphasising the prevalence of this framework for understanding difficulties.

There was a dominant belief that recurrent, reporting of unexplained pain and illness was a communicative behaviour, representative of an underlying psychological need. This is consistent with psychodynamic theory, which sees unexplained somatic symptoms as an expression of unconscious difficulties, a strategy for bringing relief from the internal distress and a means of eliciting support (Mobini, 2015). Teachers also described MUS as a form of help-seeking behaviour, which provides emotional protection, aiding the child as they attempt to cope (Raviv, Sills, Raviv and Wilansky, 2000) or alternatively as a form of opting out from the classroom altogether. This is consistent with teachers’ experience of low self-esteem in children who present this way

as they are more likely to experience active help-seeking as a threat to their sense of self, favouring covert approaches instead (Ryan, Pintrich and Midgley, 2001).

Teachers' real life experiences with MUS emphasise the importance of knowing the child and holding an empathic stance. This highlights the relevance of attachment theory (Bowlby, 1969; 2005) within the classroom setting (Bergin and Bergin, 2009), where teachers represent a potential 'safe base' for children, supporting those whose early attachment style may prevent them from responding confidently to the challenges of the educational setting (Geddes, 2006).

Family context was important in understanding the child with MUS, the parent-child relationship being seen as significant in a child's unexplained illnesses. Consistent with systems theory (von Bertalanffy, 1968), problems are understood within the context of the system rather than with the individual alone (Minuchin, Baker, Rosman, Milman and Todd, 1975). Behaviour is the product of interactions between the individual and their social context (Frederikson and Cline, 2002). According to the Ecological Model, the family system is paramount for children (Bronfrenbrenner, 1979). Teachers' experiences also highlight the importance of parenting style (Darling and Steinberg, 1993). Those described as firm and not overly sympathetic to repeated reports of illness in their children were considered more successful in dealing with them. An authoritative style, where children are expected to be mature and independent within the context of warm and nurturing parenting, is key to the development of a socially and emotionally skilled child (Spera, 2005).

Teachers' understanding of MUS was also associated with their perspective of the 'self', this being incorporated into an appreciation of context, and further testament to their adoption of systems theory as a method of sense making. Teachers' accounts of the 'self' represented the concept of 'professional identity.' This is the meaning an individual attributes to a coherent sense of who or what they are as a practising professional (Beijaard, 1995; Beijaard, Meijer and Verloop, 2004). Participants emphasised the importance of treating children with warmth, respect and empathy, a stance influenced by factors including being a parent to their own children. Identity is an ever-evolving construct, reflecting chronological change through distinct life stages (Erikson 1968). Professional identity is, therefore, intrinsically linked to teachers' personal experiences (Huberman, Grounauer & Marti, 1993; Beijaard, Verloop and Vermunt, 2000).

Teaching context and length of experience in the role are important to the development of 'professional identity' (Beijaard, Verloop and Vermunt, 2000). Participants discussed both the importance of experience and confidence in managing MUS. They reflected upon the increased and stressful demands of their role in meeting a wide range of children's needs, which expressed as 'fire-fighting', aptly conveys the intensity of the task. Current shifts in demands on teachers reflect current changes in social and economic structure, in addition to Government pressures (Le Cornu, 2013), namely monitoring of outcomes by the Office for Standards in Education (Ofsted). Such social change with its mounting pressures will not only challenge, mould and develop (Sachs, 2001) an individual's concept of professional identity, but will have implications for teacher wellbeing. Research suggests relationships with others plays a vital role in promoting resilience in teachers (Pearce and Morrison, 2011). Participants echoed this

in stating the importance of colleague relationships, which was represented by the superordinate theme ‘Collaborative Working within Schools.’

Participants’ accounts were also marked by a sense of powerlessness in the face of MUS. The vague and often elusive nature of the complaints placed children in a position of greater power, with teachers having little tangible evidence to judge the severity of the complaint. This feeling was also apparent in fathers’ accounts of parenting a child with chronic pain (Jordan, Crabtree and Eccleston, 2015) and emphasises the extent to which managing such problems challenges an individual. For teachers, this experience of powerlessness may be helpfully understood within the concept of ‘self-efficacy’ (Bandura, 1986), referring to individuals’ beliefs in their ability to take action necessary to achieve a particular outcome. The perception of the demands of the task and of one’s capacity to meet these demands, determines an individuals’ self-efficacy (Tschannen-Moran, Woolfolk-Hoy and Hoy, 1998.)

The perception of teachers, of the vital importance of communicating with others in performing their role in supporting the children, is in stark contrast to the desire expressed by fathers’ to contain the problem within the family (Jordan, Crabtree and Eccleston, 2015). This is consistent with previous research exploring perspectives of education professionals in respect to chronic pain in students (Logan and Curran, 2005). Absence of communication could affect teachers’ locus of control (Rotter, 1966) shifting from the internal, in which their own skills and abilities determine the outcome, to external factors, when personal control in supporting the child effectively is taken away (Senler, 2016).

Similarly, teachers with experiences of responding to MUS emphasized the importance of learning from others, colleagues in particular. Professional skills in managing these difficulties, complex due to the vague and recurrent nature, involved a process of informal, observational learning (Bandura, 1977) through which teachers made sense of effective approaches.

Parents played an important role in teachers' interpretation of MUS, holding the position of power, as those with legal responsibility for the child. Engagement with this 'powerful' other was essential as their attitude towards, and understanding of, the problem was influential in determining the outcome for the child. For example, parents were in a position to recruit other necessary 'powerful' individuals, including medical professionals, while the teachers' locus of control was external. Yet, there was also a sense that a parent's perspective on the child's difficulties held significant credibility and should be respected, consistent with Logan, Croakly and Scharff's (2007) reports of education professionals' experiences.

Limitations

All participants identified as 'White' or 'White British', rendering the sample culturally homogeneous. This is important because of the significance of cultural beliefs in determining attitudes and identity – an individual's construction of the world being intrinsically linked to social context (Heine, 2015; Markus and Kitayama, 1991). Culture is especially important in shaping cognitions regarding physical and psychological illness (Sheikh and Furnham, 2000; Helman, 2007).

Second, the primary method of recruitment through social media and researcher contacts may have limited the participant population. Moreover, the sample consisted of volunteers, which may have produced a bias towards individuals with a specific interest in understanding child behaviour, in particular the psychological foundations of behaviour. However, saturation of themes suggests the influence of such bias is minimal.

A further limitation was that one interview was conducted via the telephone. It is suggested that this method may result in poorer quality data due to the absence of non-verbal communication between researcher and participant (Novick, 2008). However, in this study the telephone interview was the longest in duration, suggesting that the participant did not experience any difficulty in sharing details of their experiences. Nonetheless non-verbal cues might have been lost.

Finally, although IPA permits access to the complex themes representative of the intricacy of individuals' lived experiences, it does not allow for the generation of novel theory or generalisability of the data to the wider population. Identified themes were specific to the nine participants. Therefore, the study may have failed to capture other equally valid beliefs and experiences. Furthermore, intrinsic to the process of IPA, in the development of the resultant data set, is the role of the researcher who, it is accepted, makes a unique contribution to the process. Consequently, a different researcher with different personal experiences and theoretical stance may have made different contributions to the semi-structured interviews and drawn different interpretations from the data.

Clinical Implications and Future Research

Overall, the study presents a number of useful findings. First, it demonstrates that MUS are regularly encountered by teachers and understood within a psychological, psychodynamic and systemic framework. Moreover, encountering MUS has a significant impact on the professional identity and demands of the teacher role, indicating the importance of considering teachers and the educational setting when developing interventions for children with MUS. Also, the prominence of the theme of collaboration, within school and alongside parents, demonstrates the importance for interventions to incorporate both contexts.

Second, the demands of the teachers' role and subsequent internal experiences in encountering MUS, including powerlessness and frustration, suggest that teachers would benefit from greater education and support from specialist professionals, who understand how best to support children, presenting repeatedly with somatic complaints. Third, the study has identified experiences and perceptions of MUS specific to teachers. This suggests that, although teachers are in a position of care, working with and relating to the child in this capacity entails experiences that differ from those experienced by parents.

The findings of this study provide direction for future research. Considering the importance of collaboration and communication within schools, it would be useful to explore perceptions of other education professionals, including staff employed in management, supporting roles such as Teaching Assistants and in more specialised pastoral roles such as Special Educational Needs Co-ordinators (SENCOs). An IPA framework would be helpful for this. In addition, the role of culture in understanding MUS within schools should be explored, by including teachers from different cultural

backgrounds. Finally, future research should seek to understand the process by which an individual's understanding of MUS translates into management of MUS. This is beyond the scope of the current study.

Conclusion

This study provides insight into teachers' experiences of MUS in children and their families. Teachers were seen to hold strong beliefs around the meaning of these difficulties in children, which subsequently impacts their perceptions of themselves as professionals. As illustrated in the model (Figure 1), making sense of MUS means understanding the child and the self. This is embedded within the context of relationships with the wider system, with particular significance attributed to the contribution of parents and colleagues. The study reveals that teachers adopt a biopsychosocial understanding of MUS in children, incorporating reciprocal relationships between individual factors and systemic influences. Furthermore, the somatic symptoms themselves were understood within a psychodynamic framework, symptoms representative of a mind-body link, or within a behavioural context, symptoms representative of an intentional strategy employed to seek care. Overall, the study demonstrates the unique perspectives of teachers in respect of MUS and provides guidance for future avenues of research.

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Part Three – Appendices

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Clinical Child Psychology and Psychiatry is a peer reviewed journal that brings together clinically oriented work of the highest distinction from an international and multidisciplinary perspective, offering comprehensive coverage of clinical and treatment issues across the range of treatment modalities.

Writing and submitting your manuscript

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Clinical Child Psychology and Psychiatry is interested in advancing theory, practice and clinical research in the realm of child and adolescent psychology and psychiatry and related disciplines. Articles should not usually exceed 7,500 words and be clearly organized, with a clear hierarchy of headings and subheadings (3 weights maximum). Authors wishing to submit an article longer than 7,500 words should discuss this in

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Appendix 2. Rome-III Diagnostic Criteria for Child ‘Abdominal Pain-related Functional Gastrointestinal Disorders

Extracted from Appendix A of the Rome-III Diagnostic Criteria for Functional Gastrointestinal Disorders (Drossman et al., 2006; p895-897):

H. Childhood Functional GI Disorders: Child/Adolescent

H2. ABDOMINAL PAIN-RELATED FUNCTIONAL GI DISORDERS

H2a. Functional Dyspepsia

Diagnostic criteria Must include **all** of the following:*

1. Persistent or recurrent pain or discomfort centered in the upper abdomen (above the umbilicus).
2. Not relieved by defecation or associated with the onset of a change in stool frequency or stool form (i.e., not irritable bowel syndrome).
3. No evidence of an inflammatory, anatomic, metabolic or neoplastic process that explains the subject’s symptoms

* Criteria fulfilled at least once per week for at least months prior to diagnosis

H2b. Irritable Bowel Syndrome

Diagnostic criteria Must include **both** of the following*

1. Abdominal discomfort** or pain associated with *two or more* of the following at least 25% of the time:
 - a. Improvement with defecation
 - b. Onset associated with a change in frequency of stool
 - c. Onset associated with a change in form (appearance) of stool
 - d. No evidence of an inflammatory, anatomic, metabolic, or neoplastic process that explains the subject’s symptoms

* Criteria fulfilled at least once per week for at least 2 months prior to diagnosis

** “Discomfort” means an uncomfortable sensation not described as pain.

H2c. Abdominal Migraine

Diagnostic criteria Must include **all** of the following:*

1. Paroxysmal episodes of intense, acute periumbilical pain that lasts for 1 hour or more .
2. Intervening periods of usual health lasting weeks to months.
3. The pain interferes with normal activities.
4. The pain is associated with 2 of the following:
 - a. Anorexia
 - b. Nausea
 - c. Vomiting
 - d. Headache
 - e. Photophobia
 - f. Pallor

5. No evidence of an inflammatory, anatomic, metabolic, or neoplastic process considered that explains the subject's symptoms

* Criteria fulfilled two or more times in the preceding 12 months.

H2d. Childhood Functional Abdominal Pain

Diagnostic criteria Must include **all** of the following:*

1. Episodic or continuous abdominal pain.
2. Insufficient criteria for other FGIDs
3. No evidence of an inflammatory, anatomic, metabolic, or neoplastic process that explains the subject's symptoms.

* Criteria fulfilled at least once per week for at least 2 months prior to diagnosis.

H2d1. Childhood Functional Abdominal Pain Syndrome

Diagnostic criteria Must satisfy criteria for childhood functional abdominal pain and have at least 25% of the time **one or more** of the following:*

1. Some loss of daily functioning
2. Additional somatic symptoms such as headache, limb pain, or difficulty sleeping

* Criteria fulfilled at least once per week for at least 2 months prior to diagnosis.

Appendix 3. Data Quality Checklist

Author (Year of Publication):		Yes (1) Partially (0.5) No / Cannot determine (0)
Introduction		
Background	Was the underlying theory or evidence base for the study described?	
Aims	Were the aims/objectives and hypotheses of the study clearly reported?	
Method		
Design	(a) Was the design of the study clearly reported? (b) Was the design of the study appropriate considering the aims/hypotheses/objectives?	
Recruitment	(a) Was the location of participant recruitment clearly reported? (b) Was the time period in which participants were recruited clearly reported?	
Participants	(a) Were the methods used to recruit and select participants clearly reported? (b) Were the individuals asked to participate in the study representative of the entire population from which they were recruited? (c) Were the individuals who were prepared to participate in the study representative of the entire population from which they were recruited? (d) Were the participants in different intervention groups (trials & cohort studies) or were the cases and controls (case control studies) recruited from the same population and over the same period of time? (e) Were the criteria for participant eligibility clearly specified? (f) If criteria for participant eligibility were clearly specified, did the criteria include Rome-II, Rome-III or Apley's Criteria to determine eligibility? (g) Were the characteristics of participants included in the study clearly reported? (<i>i.e. clinical and demographic details</i>) [*Information to be reported in either 'method' or 'results' section] (h) Are the distributions of the principal confounders in each participant group to be compared clearly described?	
Detection Bias	(i) Was an attempt made to blind those measuring the main outcome of the intervention? [*If not applicable, mark as 1]	

Variables	(a) Were all the main outcome variables to be measured clearly described?
	(b) Did the study include both primary outcome variable(s) and secondary outcome variable(s)?
	(c) Were the theoretical reasons for measuring each variable used in the analyses clearly reported?
	(d) Was a clear description of the manner in which all variables were measured reported?
	(e) Were the outcome measures used valid and reliable?
	(f) Were the criteria for classification as a 'treatment responder' clearly outlined?
Sample Size	(a) Did the study report having conducted a power analysis to determine the sample size needed to detect a significant difference in effect size for one or more outcome measures?
	(b) If a sample size calculation was conducted, was the final sample size adequate to ensure the study had sufficient power to detect a clinically significant effect when the probability value for a difference being due to chance is less than 5%?
Statistical Analysis	Were the statistical methods used to analyse the data clearly reported?
Procedure	(a) Is the procedure clearly described to allow replication?
	(b) Was the intervention delivered for a minimum of 4 weeks, as recommended by Irvine et al. (2006)?
<i>Selection Bias</i>	(c) Were participants randomised to intervention groups?
<i>Selection Bias</i>	(d) Was the method in which the allocation sequence was generated clearly reported?
	(e) Is the intervention(s) of interest clearly described to allow basic replication?
	(f) Was participant adherence to the intervention monitored? <i>i.e. inclusion of homework tasks</i>
	(g) Was therapist adherence to the intervention protocol monitored?
	(h) Was it clear who delivered the intervention?
	(i) Is the level of the qualification of the individual delivering the intervention clearly reported?
	(j) Is follow-up data, post-delivery of the intervention, provided? [*Information to be reported in either 'method' or 'results' section]
Results	
Participants	(a) Were the numbers of participants at each stage of the study clearly reported? (<i>i.e. recruited, confirmed as eligible, invited to participate, completed the study</i>)
	(b) Is data on attendance clearly reported?
<i>Attrition Bias</i>	(c) Is data on attrition clearly reported, including

	numbers and reasons?
Missing Data	Was a description of any missing data reported?
<i>Attrition Bias</i>	<i>(i.e. Was a description of the amount data missing reported? Were the characteristics of those lost to follow-up described? Was an explanation given as to why data was lost?)</i> [*If it is clear there is no missing data to be acknowledged, mark as 1]
Descriptive Data	Were descriptive statistics used to summarise the data obtained?
Statistical Analysis	(a) Were the statistical tests used to assess the main outcomes appropriate for the design/aims of the study?
	(b) Was analysis of data based on the 'Intention to Treat' protocol included?
	(c) Were the losses of participants to follow-up taken into account? [*If it is clear there were no losses of participants to follow-up to be acknowledged, mark as 1]
Findings	(a) Are the main findings of the study clearly described?
<i>Reporting Bias</i>	(b) Are the main findings reported free of any suggestion of selective outcome reporting?
<i>Reporting Bias</i>	(c) Were actual probability values reported for the main outcomes except where the probability value is less than 0.001?
	(d) Does the study provide estimates of the random variability in the data for the main outcome variables to indicate whether or not data is normally distributed? <i>i.e. standard deviation, inter-quartile range, standard error, confidence intervals?</i>
	(e) Were sources of bias within the data considered and appropriate adjustments made where necessary? <i>i.e. in instances when data was not normally distributed?</i>
	(f) In trials and cohort studies, do the analyses adjust for different lengths of follow-up of participants, or in case control studies, is the time period between the intervention and outcome the same for cases and controls? [*If it is clear that the lengths of follow-up was consistent, mark as 1]
	(g) Was there adequate adjustment for confounding factors in the analyses from which the main findings were drawn? <i>i.e. were the potential confounding factors identified and controlled for?</i>
<i>Reporting Bias</i>	(h) Were the actual values resulting from statistical tests involving the main outcome variables reported when both significant and non-significant?

Discussion	
Main Findings	(a) Were the main findings reported and summarised within the context of the aims/objectives and/or hypotheses of the study?
	(b) Are the main findings based on evaluation of the primary outcome variable(s)?
Limitations	(a) Were the limitations of the study clearly described?
	(b) Was the potential impact of these limitations on the interpretation of the findings described?
Interpretation	(a) Was the interpretation of findings consistent with the reported results?
	(b) Were the findings of the study interpreted within the context of relevant theory or evidence base?
Other information	
Generalizability	Is the generalizability of the findings discussed and reported?
Ethical Issues	(a) Have all important adverse events that may be a consequence of the intervention been reported?
	(b) Was it reported that ethical approval was sought and obtained prior to the commencement of the study?
	(c) Was the source of funding declared?
TOTAL SCORE	
out of 60	
% QUALITY	

Appendix 4. Data Extraction Form

Research Aims and Hypotheses:	
Theoretical Model/Evidence Base:	
Population being studied:	
Participants: Recruitment method Time period of recruitment Location of recruitment Inclusion/Exclusion criteria Screening process Selection procedure Number of participants approached Number of participants eligible	
Sample: Size/Number of participants completing the study Age Gender Ethnicity Diagnosis Other socio-demographic variables? Clinical information Randomization procedure Statistical assessment of group differences carried out?	

<p>Attrition Rates: Drop-out and explanation</p>	
<p>Study Design: Design Procedure</p>	
<p>Intervention: Aim Content Number of conditions Duration Mode of delivery Who conducted intervention and qualification Place in which intervention was delivered.</p>	
<p>Outcome Measure(s): Type of measure(s) used Individuals who completed measure(s) When measure(s) completed (baseline vs. post intervention) Reported reliability of measure(s) Reported validity of measure(s)</p>	
<p>Statistical Analysis: Procedure/technique Inclusion of follow-up data Power analysis Descriptive analysis Statistical analysis Variables controlled for in analysis</p>	

Main Findings:	
Authors' Conclusions: Main conclusions Limitations Implications	
Ethical Issues:	
Other Points of Interest Identified:	
Quality Rating:	

Appendix 5. Data Quality Checklist Ratings For All Reviewed Studies

Table 1.

Checklist Question (Yes = 1; Partially = 0.5; No/Cannot determine = 0)	Duarte et al. (2006)	Finney, Lemanek, Cataldo, Katz and Fuqua (1989)	Groß and Warschburger (2013)	Gulewitsch, Müller, Hautzinger and Schlarb (2013)	Levy et al. (2010)	Levy et al. (2013)	Robins, Smith, Gluting and Bishop (2005)	Sanders, Shepard, Cleghorn and Woolford, (1994)	Total Score (across all studies; maximum score = 8)
<i>Researcher rating score (independent rater score, when applicable)</i>									
Introduction Background	1	0.5	1	0.5* (1)	0.5* (1)	1	1 (1)	1	6.5
Aims	1	0	1	0.5 (0.5)	1 (1)	1	1 (1)	1	6.5
Method Design (a)	1	1	1	1* (0.5)	1 (1)	1	1* (0.5)	1	8
Design (b)	1	0	1	1 (1)	1 (1)	1	1 (1)	1	7
Recruitment (a)	1	1	0	1 (1)	1 (1)	1	1 (1)	0	6
Recruitment (b)	1	0	0	0 (0)	1 (1)	1	1 (1)	0	4
Participants (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	0	7
Participants (b)	0	0	0	0 (0)	1 (1)	1	1 (1)	0	3
Participants (c)	0	0	0	0 (0)	0 (0)	0	0 (0)	0	0
Participants (d)	1	0	0	1 (1)	1 (1)	1	1 (1)	0	4
Participants (e)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
Participants (f)	1	0	1	1 (1)	1 (1)	1	1 (1)	1	7
Participants (g)	1	1	1	1 (1)	1 (1)	1	1* (0.5)	1	8
Participants (h)	1	0	1	1 (1)	1 (1)	1	1 (1)	1	7
Participants (i)	0	1	1	1 (1)	1 (1)	1	0 (0)	0	5
Variables (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8

Variables (b)	0	0	1	1 (1)	1 (1)	1	1 (1)	1	6
Variables (c)	0	0	1	1 (1)	0.5 (0.5)	0	0 (0.5*)	0	2.5
Variables (d)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
Variables (e)	0	0	1	1 (1)	1 (0.5*)	1	1 (1)	0.5	5.5
Variables (f)	0	0	1	1 (1)	0 (0)	0	0 (0)	1	3
Sample Size (a)	0	0	1	1 (1)	1* (0.5)	1	1 (1)	0	5
Sample Size (b)	0	0	0	1 (1)	0 (0)	0	0 (0)	0	1
Statistical Analysis	1	0.5	1	1 (1)	1 (1)	1	1 (1)	1	7.5
Procedure (a)	1	1	1	1 (0.5*)	1 (1)	1	1 (1)	0.5	7.5
Procedure (b)	1	0.5	1	1 (1)	0 (0)	0	1 (1)	1	5.5
Procedure (c)	1	0	1	1 (1)	1 (1)	1	1 (1)	1	7
Procedure (d)	0	0	1	1 (1)	1 (1)	1	1 (1)	0	5
Procedure (e)	1	0	1	0.5 (0.5)	1 (1)	0	1 (1)	1	5.5
Procedure (f)	0	0	0	0 (0.5*)	1 (1)	1	1 (1)	1	4
Procedure (g)	0	0	0	0 (0)	1 (1)	1	1* (0.5)	0	3
Procedure (h)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
Procedure (i)	0	0	0	0 (0)	1 (1)	1	1 (1)	1	4
Procedure (j)	0	1	1	1 (1)	1 (1)	1	1 (1)	1	7
Results									
Participants (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	0	7
Participants (b)	0	1	1	1 (1)	1 (1)	1	1 (1)	1	7
Participants (c)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
Missing data	1	0.5	1	1 (1)	1 (1)	1	1 (1)	1	7.5
Descriptive data	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
Statistical analysis (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8

	Statistical analysis (b)	0	0	1	0 (0)	1 (1)	1	1 (1)	0	4
	Statistical analysis (c)	1	0	1	1 (1)	1 (1)	1	1 (1)	1	7
	Findings (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
	Findings (b)	0	1	1	1 (1)	0 (0)	1	1 (1)	1	6
	Findings (c)	1	1	1	1 (1)	1 (1)	1	0.5 (0.5)	1	7.5
	Findings (d)	0	0	1	1 (1)	1 (1)	1	0* (0.5)	1	5
	Findings (e)	0	0	1	1 (1)	0 (0)	0	1 (1)	0	3
	Findings (f)	1	0	1	1 (1)	1 (1)	1	1 (1)	1	7
	Findings (g)	1	0	1	1 (1)	0 (0)	0	1 (1)	1	5
	Findings (h)	1	1	1	1 (1)	1 (1)	1	0.5* (1)	0	6.5
Discussion	Main findings (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	0	7
	Main findings (b)	1	1	1	1 (1)	1 (1)	1	1 (1)	0	7
	Limitations (a)	0	1	1	1 (1)	1 (1)	1	1 (1)	0	6
	Limitations (b)	0	0	1	1 (1)	1 (1)	1	1 (1)	0	5
	Interpretation (a)	1	1	1	1 (1)	1 (1)	1	1 (1)	1	8
	Interpretation (b)	1	0.5	1	1 (1)	1 (0.5*)	1	1 (1)	1	7.5
Other information	Generalizability	1	0	0	0 (0)	1* (0.5)	1	0 (0)	0	3
	Ethical issues (a)	1	1	1	1 (1)	1 (1)	1	1 (0*)	1	8
	Ethical issues (b)	0	0	1	1 (1)	0 (0)	0	0 (0)	0	2

Ethical issues (c)	0	0	1	0 (0)	1 (1)	0	1 (1)	1	4
Total Score (Maximum score = 60)	37	26.5	50	49.5 (50)	50 (49.5)	50	52.5 (50)	37	
% Score	62%	44%	83%	83% (83%)	83% (83%)	83%	88% (84%)	62%	
Inter-rater agreement (%)				93%	92%		88%		
Total Score following collaborative scoring with independent rater (Maximum = 60)				49.5	50		50.5		
% Score following collaborative scoring with independent rater				83%	83%		84%		

Notes:

* = Final rating based on collaborative decision-making process with independent rater.

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Manuscript preparation

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Appendix 7. Interview Schedule

Question 1: What are teacher's experiences of unexplained physical health problems in the children and families they work with? How relevant do they feel this issue is?

It is common for children to complain of having frequent physical aches and pains, such as tummy aches and headaches. Often, these problems cause children to have more time off school sick or have to leave school early.

Have you encountered these types of difficulties amongst children you have worked with during your teaching career?

Further prompts if needed, if yes:

- Can you tell me about how often have you encounter children with these types of difficulties and the types of physical health problems have you seen during your teaching career?
- What sense do you make of this difficulties compared to other health issues? Do you distinguish between 'real' health issues and those that are unexplained and recurring?

Further prompts if needed, if no:

- Have you ever encountered this indirectly? For example, have you heard colleagues talk about children who are frequently complaining of not feeling well or frequently absent because of a recurrent physical health problem of this type? Or, did you encounter these types of difficulties during your training?
- Considering your own experience what do you make of hearing that the literature reports these difficulties to be common?
- Do you think there is anything about the school system you are currently working in that would make it harder for you in your role to identify or encounter these types of difficulties?

Question 2: What sense do teachers make of unexplained physical health problems in children, in terms of their existence, maintenance and management?

Could you tell me about a specific experience you have had of working with a child, and their family, who has had these types of difficulties?

Further prompts if needed, if yes:

What do you think may have made this child vulnerable to having this difficulty?

What do you think might have brought this problem on?

What do you think might have been responsible for keeping this difficulty going?

At the time of this difficulty, were you given any details about what was going on and where did this information come from?

How did this difficulty impact the child at school?

- How did it impact on the child's schooling, for example performance at school or attendance?
- How did it impact on the child's relationship with their peers?
- How did it impact on the child's relationship with you?

How was this child's difficulty managed?

- Who was involved in managing this?
- Is there anyone you feel should have been involved who wasn't?
- Was the child's family involved? If so, in what way were they involved?
- How do you feel about the family's involvement/lack of involvement in the situation?
- How was school involved?
- Did the situation get resolved? In your opinion, was it resolved satisfactorily?
- Looking back, how do you feel about how the situation was managed?

Question 2: What sense do you make of unexplained physical health problems in children, in terms of their existence, maintenance and management?

Could you tell me about a specific experience you have had of working with a child, and their family, who has had these types of recurring difficulties?

Further prompts if needed, if no:

What do you think may make a child vulnerable to having this difficulty?

What do you think might bring this type of problem on?

What do you think might be responsible for keeping this type of difficulty going?

How do you think these difficulties might impact the child at school?

- How might it impact on the child's schooling, for example performance at school or attendance?
- How might it impact on the child's relationship with their peers?
- How might it impact on the child's relationship with you?

How do you think a child's with such a difficulty be managed?

- Who would be involved in managing this?
- Who should be involved in managing this?
- Would the child's family be involved? If so, in what way would they be involved?
- How would the school be involved?

Question 3: How do teachers view their professional role in supporting children with recurrent unexplained physical health problems?

Further prompts if needed:

Do you feel that teachers have a role in supporting children with these types of difficulties?

Have you always viewed the role of your profession in this way?

What do you think has influenced how you view this role?

Do you see unexplained physical health problems in children as an issue that needs you to work with parents? If so, in what way would you do this?

Question 4: How confident do teachers feel in dealing with children with recurrent unexplained physical health problems?

Further prompts if needed:

How confident do you feel in dealing with children with these types of difficulties?

- How confident do you feel providing such children with pastoral support?
- How confident do you feel managing such children in the classroom, for example, with their engagement and learning?
- How confident do you feel managing issues with attendance?
- How confident do you feel in raising and addressing concerns about this issue with a child's parents?

What factors do you think influence how confident you feel?

A Research Opportunity for Teachers ...

A Trainee Clinical Psychologist based at the University of Hull is looking for Teachers to share some of their professional experiences of working with children and families as part of their Doctoral Research Study.

The study is specifically exploring education professionals' experiences of, and beliefs regarding, recurrent unexplained physical health problems in the children and families they work with.

This is an exciting opportunity to contribute to the existing knowledge base of a range of professions working to support children and families with unexplained health problems in a range of settings, including educational and clinical.

What does the study involve?

- You will be invited to take part in a one-to-one interview with the researcher. The interview will last approximately 1 hour at a time and place convenient for you.
- During the interview the researcher will ask you questions about your professional experiences of, and your beliefs regarding, recurrent unexplained physical health problems in children.
- You will also be invited to share and discuss a specific experience you have had of working with a child with such difficulties, and of working with their family.

How can I take part?

- If you are interested in taking part, or would simply like more information, please get in touch with the researcher, Stephanie Burchill:

Telephone: 07502506491

Email: at s.r.burchill@2013.hull.ac.uk

Important Information

- The study has approval from the University's Faculty of Health & Social Care Ethics Committee.
- You are under no obligation to participate and can withdraw at any point prior to data analysis.
- There is no cost involved in taking part in the project.
- You can ask any questions at any point.
- All information given will be kept anonymous.
- All information given will be kept confidentially – confidentiality will only be broken if there are concerns that you, or someone else is at risk of harm.
- Information gathered will be analysed by the researcher and the findings written-up and submitted for publication.

Thank you for your interest!

Appendix 9. Participant Information Sheet



Participant Information Sheet

Title of Study: Teachers' experiences of and beliefs regarding recurrent unexplained physical health difficulties in children.

Hello, my name is Stephanie Burchill and I'm a Trainee Clinical Psychologist on the Clinical Psychology Doctorate course at the University of Hull. As part of my course I am carrying out a research study and would like to invite you to take part. The study is exploring education professionals' experience of and beliefs regarding recurrent unexplained physical health problems in the children and families they work with. This study aims to improve children's and families' lives by understanding the mechanisms of unexplained physical health problems. We also hope to better understand education professionals' attitudes and beliefs in order to create CPD opportunities, and to help linking up with other professional groups.

Before you decide to take part, it is important for you to understand why the research is being carried out and what it will involve. This leaflet will give you information about the project. Please read it carefully before deciding if you'd like to take part. If there is anything you are unsure about, or if you have any questions, please contact me using the details provided.

What is the study and what does it involve?

What is the study about?

The study aims to explore teachers' experience of recurrent unexplained physical health problems in the children and families they work with.

Why is this study important?

Teaching professionals see children daily and also have regular contact with their wider family. Therefore, it is important to understand how they view unexplained physical health difficulties in children and young people. This information will help to advance current clinical understanding of recurrent physical health problems in children, in addition to facilitating the development of training protocols for education professionals.

Who can take part in the study?

- Teachers who currently work, or who within the last 2 years have worked, in a British Primary or Secondary School.
- Teachers may hold or have previously held fully qualified or newly qualified posts.
- Teachers must hold or have previously held a full-time position or part-time position or a position as a member of supply staff.

Why have I been invited to participate?

You have been invited to participate because of your professional role as a teacher.

What does the study involve?

You will be invited to take part in a one-to-one interview with me. The interview will last approximately 1 hour and will be arranged at a time and place convenient for you. The interview will be audio recorded.

During the interview I will ask you questions about your experiences of recurrent unexplained physical health problems in school children within your professional role as a teacher. Within this you will be invited to share and discuss a specific experience you have had working with a child with these difficulties. During the interview you will also be given the opportunity to share your personal beliefs and attitudes regarding recurrent unexplained physical health problems in children.

You will also be asked to complete a short demographic information sheet with information about: your age, gender, ethnicity, professional role/job title and the number of years you have been in this profession.

Do I have to take part?

No, it is completely up to you to decide whether or not to take part in this study. If you decide that you would like to participate you will be asked to sign a consent form. You are free to withdraw from the study at any point before I start to begin to transcribe the data. You do not have to give a reason why.

How will my information be used?**What will happen to the audio recording?**

The audio recording will be stored electronically on a password encrypted device. The audio recording will then be transcribed. This transcript will be anonymous. No identifiable information will be included in the transcript. The audio recording will be destroyed following transcription.

Electronic copies of the transcript will be stored securely on an encrypted device. All hard copies of transcript will be stored securely on University Departmental premises. Following the completion of the study all data including personal information and transcripts, will be stored for ten years in order to comply with legal and ethical standards. Personal information and transcripts will be stored separately. After 10 years all information will be destroyed.

Will other people know what I have said?

Everything that you share during the interview will remain confidential. Confidentiality will only be broken if any information you share raises concerns for the safety of you or anyone else. If this happens, you will be informed prior to the necessary safeguarding procedures being implemented.

All information gathered during the interview will also be made anonymous. To ensure this we will give you a unique code at the start of the study. This code will be used instead of your name on all electronic and paper copies of the transcript. The key to the code will be stored securely.

Only I, or my research supervisor, will access the non-anonymised information recorded (i.e. information recorded on your consent form and demographic information sheet). This information will be stored securely on University Departmental premises and will be stored separately to the recordings and transcriptions.

It is possible that some direct quotes from your interview will be included in the write-up of the study. However, all quotes will always be anonymised and under no circumstances will personal or identifiable details will included.

What will happen to the results of the study?

Once analysis of the data is complete, the findings of the study will be written-up as part of my Doctoral Thesis. This may subsequently be submitted for publication in a scientific journal or presented at conferences. Direct quotes from your interview may be used in each. However, at no point will any information be included which could identify you.

You can also choose to be informed of the results of the study following its completion.

Additional Information

Expenses and payment

Participation in this study is voluntary. Therefore, no payment will be given for taking part.

Who has reviewed the study?

The study has been reviewed and approved by the Faculty of Health and Social Care's Ethics Committee to ensure the study does not harm the safety of those participating.

Are there any risks involved in taking part in this study?

No risks have been identified for participants taking part in this study.

What are the benefits of participating in this study?

Despite there being no direct benefit or payment as a result of participating in this study it is hoped that you will find it useful to have the opportunity to share and reflect upon your professional experiences and personal views. It is also hoped that the information you share will ultimately contribute to the development of training protocols and resources for education professionals, in addition to furthering clinical understanding of recurrent unexplained physical health problems.

What are the possible disadvantages of taking part?

The study will require you to give 60 minutes of your time. It is not intended to be upsetting. Some people however may find it stressful or upsetting to discuss their professional experiences and personal reflections. However, if this happens I will be understanding and will help you to access additional support.

What if I change my mind?

You are free to change your mind and withdraw from the study at any point without giving a reason, so long as you inform me prior to the information being transcribed and analysed.

What if there is a problem?

If at any point during the study you have any questions or concerns you can contact me using the details provided. I will do their best to answer any questions raised.

Thank you for taking the time to read this information leaflet.

If you are interested in participating or would simply like some more information please contact me (Stephanie Burchill, Trainee Clinical Psychologist) on 07502506491 or at s.r.burchill@2013.hull.ac.uk

Appendix 10. Consent Form

Consent Form

Researcher: Stephanie Burchill

Title of study: *Education professionals' experience of and beliefs regarding recurrent unexplained physical health problems in children.*

Please read the statements below carefully and if you agree to them please sign your initials in the boxes below:

I confirm I have read the information sheet about the above research project and had time to consider the information. If I had any questions, I have had the opportunity to ask them and they have been answered satisfactorily.

I understand that my participation is voluntary and that I am able to withdraw at any time without giving a reason up until the point that the data is transcribed and analysed.

I confirm that direct quotes from the interview may be used in future publications or conference presentations. I understand that any quotes used will be anonymised and that any quotes that risk breaching confidentiality will not be used in publications.

I agree to take part in the interview and understand that this interview will be audio recorded.

Name of Participant:.....

Signature of Participant:

.....

Date:

.....

Name of Researcher taking consent:

Signature of Researcher taking consent:.....

Date:

.....

Would like to be informed of the findings of the study? If yes, please provide an email or postal address:

.....
.....
.....

Appendix 11. Demographic Information Sheet

Participant ID:

Information About You

It would be very helpful if you could complete this demographic information sheet.

1. What is your age in years?.....

2. What is your gender? *Please tick one of the following:*

Male Female

3. What is your ethnicity? *Please tick one of the following:*

White or White British	<input type="checkbox"/>
Asian or Asian British	<input type="checkbox"/>
Black or Black British	<input type="checkbox"/>
Chinese or Chinese British	<input type="checkbox"/>
Mixed	<input type="checkbox"/>
Other <i>please specify</i>	<input type="checkbox"/>

4. What is your job title?.....

5. How many years have you worked in this professional role?

.....

6. What type of educational setting do you work in? *Please tick one of the following:*

Primary School

Secondary School

Other *please specify*.....

Appendix 12. 'Sources of Support' Sheet

Sources of Support

If participating in this study has raised any concerns regarding your own wellbeing the following resources may be helpful:

GP: If you feel unwell or are having difficulties coping it is recommended that you contact your GP for advice or support.

Teacher Support Network: This organisation offers 24/7 telephone support specifically for teachers, providing access to professional coaches and counsellors.

Telephone: 08000 562 561

Time to Change website: The Time to Change website offers advice on support for how to get support from your employer if you are finding work stressful.

Website: <http://www.time-to-change.org.uk/your-organisation/support-workplace/getting-support-from-my-company>

Samaritans: The Samaritans is a charity that offers confidential support for individuals experiencing feelings of distress.

*24 hour telephone helpline: 116 123
www.samaritans.org.uk*

If you have any queries specifically regarding your participation in the study please feel free to contact the researcher, **Stephanie Burchill**, on:

Email: s.r.burchill@2013.hull.ac.uk

Telephone: 07502506491

Appendix 13. Example of Data Analysis (Table 2.)

Exploratory Comments	Transcript	Emergent Superordinate Themes
Description of how problem presented.	<p><i>R: HOW FREQUENT HAVE YOU FOUND IT IN YOUR WORK?</i></p> <p><i>A: Erm, erm, well I had a lad in class who was in my form last year and I had had him from the start of year 7 through to Year 8 when they're then moved to the Upper School and he presented with this kind of thing where he would come up to me at the beginning.</i></p>	<p>Perceptions of the Child Working Collaboratively within School</p>
Physical appearance – ‘big’ – linked to judgement made regarding his ability to manage the demands of secondary school.	<p><i>Quite often it would be at the start of the day and he would come up to me and say Miss I feel really sick, Miss I feel really sick and he would start to look like he was about to cry.</i></p> <p><i>The thing about him was he was quite a big lad so you <u>would expect him to be quite mature and be able to cope with being in the secondary school and everything.</u></i></p>	
Linguistically distancing self from this judgement – ‘so you would...’ not ‘so I...’ (acknowledging that this is not a good judgement to make?) OR talking as if sharing the position of the school as a collective.		
? – sense of participant’s approach as a teacher – valuing the importance of		

understanding them as a whole? Seeing what's going on underneath the surface.

Repeated use of term 'struggling' and tone – emphasising the extent to which distress was impacting on his life.
Identify relevant factors for child with MUS – peer relationships, academic demands, not wanting to be challenged, not feeling confident.
Conveying a belief that the child lacked the resources to manage this demand.

But he was really struggling – struggling with his friendships – if he hadn't got homework to hand in he didn't ever want to get into any trouble and he didn't like confrontation.

Perceptions of the Child

? – MUS a form of escape for children.

So the idea that he might be going into a lesson and someone was going to be asking him for something and he might have to deliver it was putting such pressure on him that he would actually feel like he wanted to go home and he was always angling to go home.

Perceptions of the Child

Management strategy – by supporting child to stay in school physical complaint went away. Not allowing avoidance/escape.
Modelling coping – acknowledging problem but communicating that it will all be ok.

So I would say to him – let's see how you go and if you still feel poorly at break time come back and see me and then he usually would just go off into school- realise he wasn't going to be able to get away with going home and then he would be OK.

Perceptions of the Self as a Teacher

Peer relationships important; Sporting ability

But he also struggled with his friendships

Perceptions of the Child

important.

? – conveying the importance of a culturally valued ideal amongst adolescents – the importance of having a ‘skill’ to be liked for; the value of ‘sport’ culturally.

which might had made it difficult because he wasn't necessarily naturally sporty or anything.

*He didn't have any of those things where you could mix with people outside your class. So it was kind of limited to people who were in the form and I don't think he naturally gelled with anybody. **His attendance was really quite poor.***

Management strategy

? – conveys personal value – the importance of encouragement, affirming, rewarding.

R: OK – BECAUSE OF THIS?

*Yes, I think that he had to really to work on his attendance and try and encourage it. I gave him - at the end of Year 7 we had to give out special awards and things to people – and when I could tell he'd been really trying to make sure he was in school **I gave a certificate because he had improved his attendance.***

Perceptions of the Self as a Teacher
Working Collaboratively within School

? – Linking maturity and coping – conveying belief that it is with maturity that children are able to cope with demands/anxieties.

He hadn't actually got it to the same as everybody else but he had actually got better. I think that was through maturity because he got more confident at school.

Perceptions of the Child

<p>MUS seen in children who have difficulties in their life. ? – Powerless as a teacher when dealing with MUS; children taking control; powerless to knowing what’s really going on. ? – Belief that there is always something going, there is a reason for the difficulties – but just have to find it. ‘Cracking nut’ conveys how difficult task it.</p>	<p><i>R: OK</i> <i>A: Quite often if there’s stuff going on around the child’s life they’ll come up and say they don’t feel well and it’s always things that you can’t kind of prove like tummy ache or headache or sickness and quite often you can say what’s going on and you can always find that <u>there’s a nut somewhere that you just have to crack.</u></i></p>	<p>Perceptions of the Child Perceptions of the Self as a Teacher</p>
<p>Two types of children – either can get to the bottom of things easily or you can’t – some children won’t open up in the same way.</p>	<p><i>R: OK</i> <i>A: Quite often, if once children are that way I would quite often take a child outside and say – what’s happening. Then quite often I’ll say is everything alright with your friends and then quite often then there would be the tears and then there would be actually be able to share with me what the problem was – sometimes.</i></p>	<p>Perceptions of the Child Perceptions of the Self as a Teacher</p>
<p>Management strategy – communication with other staff.</p>	<p><i>There would be – say like with this lad – I never – I only really got the fact that he didn’t like not doing his homework because I spoke to another member of staff about him and she said he’d got really upset and he also had this thing where <u>he’d say that he had a</u></i></p>	

embarrassment experienced by child? Child not able to say what was really wrong.

cat and he's be upset because he said the cat had died. It turned out that the cat died years ago and so it was like a recurring them that he could say that was why he was feeling so emotional because my cat died. And it was like he would be justifying why he was upset.

Perceptions of the Child

Role of school – demands, academic.
Repeating idea of ‘coping’
MUS a form of escape.

But quite often it was because there was something in school that he wasn't coping with. So it was just a way of excusing it. She thought it was because he was in my form and that's why she was bringing his behaviour to my attention and that's why, when I could reveal that it was when he didn't have his homework.

R: YEAH. WOULD YOU SAY THERE'S A DIFFERENCE BETWEEN MORE REAL PHYSICAL HEALTH PROBLEMS AND THESE TYPES OF PHYSICAL HEALTH PROBLEMS? DO YOU SEE A DISTINCTIN BETWEEN THEM?

Children as complex, funny – not straightforward, more to what meets the eye.

*A: Yes, definitely because - I think - **children are funny – they're quite complicated.** So yea, you can - could I usually tell if someone was saying something like that – **I think after quite a lot of experience you can know when someone is really feeling sick and when***

Perceptions of the Child

Experience important

Perceptions of the Self as a Teacher

Participant is making own distinction between

illness with organic or emotional cause.

? – Power of MUS – you can never be totally sure; its almost like the participant is expressing how you can't argue with a child when it comes to physical health; there is always an element of doubt regarding the true problem (i.e. physical vs. emotional).

Experience is important.

Regularity of contact.

? – Possible contradiction here – comment made about having limited contact but follows statement regarding experience – links to comments made later in statement relating to participants beliefs that they do do a good job – she is able to have a good relationship with children, that's good enough to have a rapport/build trust *even if only seeing them once a week?*

Getting to know children – all children are different (acknowledging this difference). Importance of getting to know children – role of teacher is to know their children.

they're actually feeling sick because they're a bit anxious about something. I wouldn't stake my life on that.

I think you know after a certain amount of teaching you can and dealing with kids every day – you do kind of. You know I only see the students once a week.

*Once a week in year 7, twice a week when they're Year 8, three times a week when they're Year 9. So you do get to know who they all are and you do **get to know what sort of characters they all are and I feel like you know that's part of what I do – to know who***

they are.

Pride in doing a good job
? - going beyond the basics, sense of participant feeling that they do a good job.

I take quite a pride in that.

Not all children see their role in the same way. Participants see their role as a mother as important to determining why she approaches her job in the way she does.

Not all teachers operate in the same way and I think because I have children myself I relate to them perhaps differently than perhaps would a member of my faculty who doesn't have children.

Perceptions of the Child
Perceptions of the Self as a Teacher

? – making sense of her experiences by comparing her approach to that of colleagues – comparison to others, trying to make sense of this difference (parent vs. not a parent). Quality of the relationship with the teacher important – children feel able to share problems/concerns.

She gives the impression she doesn't like children very much whereas I think I do enjoy the company of children and talking to them and finding out about them.

Working Collaboratively within School

Aware of not conveying self as perfect.

I do feel I do have quite a good relationship with a lot of children that I took and sometimes that does mean that they will come forward and say something to me about something because they feel that they can share something with me because I am you know, not always, I'm not like a super teacher or anything. I do try and **make myself approachable** and I do try and find out what's going on.

Perceptions of the Self as a Teacher

Importance of being approachable.

I do sort of give kids a little bit of a chance to talk to me about stuff if they need to. But as to

*your question yes I think I can usually tell
when it's something that's going on physically
and when it's something that's going on that's
around an issue that's causing the symptoms
as it were.*

Children as clever

? – sense that MUS is used intentionally – it is
a strategy, a powerful tool because they
cannot be challenged by teachers.

*The **kids are quite clever** as well and always
use something that you can't tell right away
whether a child has got tummy ache or not.
Can you? So it is a bit difficult.*

Perceptions of the Child

Notes:

Bold = Descriptive comments

Underlined = Conceptual comments

Shading = Linguistic comments

Appendix 14. Example of Supporting Quotes for Superordinate and Subordinate Themes (Table 3.)

Superordinate Theme	Subordinates Theme	Additional Examples of Supporting Quotes
Perceptions of the Child	'They behave like that for a reason'	<p data-bbox="1413 421 2040 523"><i>'If something was wrong it went straight to...they didn't know what it was so they had a tummy ache.'</i> (Jenny)</p> <p data-bbox="1413 560 2040 794"><i>'...or it could be that some students it's emotional stress that manifests itself and actually you have to know that student, have the support in place, to be able to dig behind that and find that actually that's what's going on and sometimes it is just emotional and it's not actually physical and it presents itself physically.'</i> (Michael)</p> <p data-bbox="1413 831 2040 895"><i>'I strongly believe that emotional distress can manifest itself physically, without a doubt.'</i> (Kate)</p> <p data-bbox="1413 932 2040 1034"><i>'But quite often it was because there was something in school that he wasn't coping with. So it was just a way of excusing it.'</i> (Anne)</p> <p data-bbox="1413 1070 2040 1198"><i>'...there was no doubt about it that she did exhibit real symptoms...but because we had known her beforehand, some of us thought these symptoms had actually been brought on.'</i> (David)</p> <p data-bbox="1413 1235 2040 1401"><i>'With the really young ones I think often they equate everything with being a tummy ache because they can kind of get how that it but then actually when you chat to them more it doesn't necessarily turn out to be that.'</i> (Rebecca)</p>

Superordinate Theme	Subordinates Theme	Additional Examples of Supporting Quotes
Perceptions of the Self as a Teacher	'It's important to them so it has to be important to me'	<p data-bbox="1435 347 1973 379"><i>'...children need love as basic thing' (James)</i></p> <p data-bbox="1435 416 2040 616"><i>'I'm sure it would impact on them psychologically, day in day out. It must get quite dispiriting if you're really tired all the time, and things like that. I really do try and prioritize it because I think it's not just their experience in that lesson, it's their life, isn't it?' (Laura)</i></p> <p data-bbox="1435 652 2040 783"><i>'...it may be that they've just got a tummy ache because somebody's told them they don't like them anymore but that's still important enough to take five minutes out and deal with them.' (Jenny)</i></p> <p data-bbox="1435 820 2040 951"><i>'...I think it might be more personal, I think because you have to be very caring and you have to consider other, well what's going on in other people's live.' (Samuel)</i></p> <p data-bbox="1435 987 2040 1158"><i>'So you do get to know who they all are and you do get to know what sort of characters they all are and I feel like you know that's part of what I do – to know who they are. I take quite a pride in that.' (Anne)</i></p>

Appendix 15. Pilot Study (Brief Report)

Parental Attachment and Somatic Wellbeing in Children and Adolescents: The Mediating Role of Psychological Health

Introduction

Recurrent and unexplained physical health difficulties in children and adolescents are becoming increasingly prevalent (Modin & Ostberg, 2009). Such difficulties are often referred to as medically unexplained symptoms (MUS) and commonly include stomach aches, headaches and muscular pains (Vila et al., 2012). They have significant, detrimental effects on wellbeing and quality of life (van der Veek, Nobel & Derkx, 2012), and lead to reduced educational outcomes (Hughes, Lourea-Waddell & Kendall, 2008) and increased demand on health services (Perquin et al., 2001). Therefore, it is important to understand the mechanisms of their development and maintenance. Currently, MUS are understood within a biopsychosocial framework, involving a range of factors (Engel, 1977; Vetter, McGwin, Bridgewater, Madan-Swain & Ascherman, 2013). A prominent, linked psychosocial stressor is family environment (Eminson, 2007). Attachment Theory (Bowlby, 1969; 2005) provides a framework for understanding how early relationships may affect wellbeing in later life (Ciechanowski, Walker, Kato & Russo, 2002). Research has shown an association between insecure attachment style and increased physical health problems in both adults (Mauder & Hunter, 2001; 2008) and children (Esposito et al., 2013; Simmons, Goldberg, Washington, Fischer-Fay & Maclusky, 1995). For adults, this evidence also extends to MUS (Berry & Drummond, 2014; Rief & Broadbent, 2007). However, to date no work has explored the relationship between attachment and unexplained somatic difficulties in children (Basch et al., 2015).

The literature demonstrates a well-established relationship between attachment and psychological health (Shaw & Dallos, 2005; Wilkinson, 2004). There are lower levels of psychological difficulties, including depression and anxiety, (Raja, McGee & Stanton) in adolescents with secure attachment style, Stanton, 1992; Rönnlund & Karlsson, 2006; Salzman, 1996; Laible, Carlo evident & Raffaelli, 2000). However, as there is strong evidence that children with MUS also have elevated levels of psychological difficulties (Egger, Costello, Erkanli & Angold, 1999; Imran, Ani, Mahmood, Hassan & Bhatti, 2014; Walker, Garber & Greene, 1993) it is the premise of this study that psychological health may play a causal role, mediating the link between attachment style and the manifestation of MUS.

This study seeks to explore potential causal mechanisms of MUS within a community sample. It examines a proposed mediation model (Figure 1), specifically the correlation between parent-child attachment style, psychological health and somatic wellbeing. The relationship between these three variables has not previously been evaluated. The study also seeks to explore the role of more than one parent-child attachment relationship. Often consideration of parental attachment is limited to the mother, attachment relationships with more than one primary carer being rarely reported in the literature. Development of current understanding is important in order to facilitate early identification of individuals at risk of developing MUS. A more comprehensive understanding of the role of attachment may also lead to greater appreciation of attachment relationships in the treatment of MUS, informing the practice of a range of professionals within the clinical, educational and social settings.

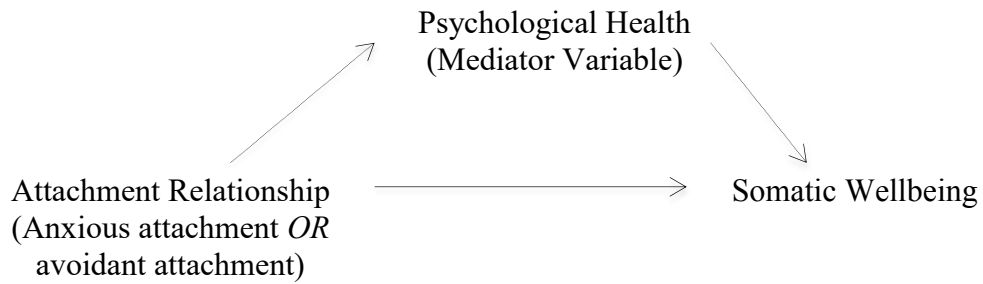


Figure 1: Hypothesised mediation model.

The primary aim was to determine whether psychological wellbeing mediates the association between the quality of the parent-child attachment and somatic wellbeing.

The study aims to test the following hypotheses:

1. A positive correlation will be seen between the quality of the parental attachment relationship and somatic wellbeing, with psychological wellbeing acting as a mediator variable. In other words, the quality of the parent-child relationship will be shown to influence physical wellbeing by first determining the child's psychological health.
2. Children with a secure attachment relationship (low anxiety or avoidance scores) with two parents will experience less severe psychological health problems and less frequent somatic difficulties.
3. Children with an insecure attachment relationship (high anxiety or avoidance score) to only one parent will experience different levels of psychological and physical health difficulties to those securely attached to both parents.
4. Children with an insecure attachment relationship (high anxiety or avoidance scores) to two parents will experience more severe psychological health

problems and more frequent somatic difficulties than those with a secure attachment.

Method

Design

A correlational design was used. The predictor variable was attachment strength, measured using an ordinal scale ('2 secure parental relationships'; '1 insecure parental relationship and 1 insecure parental relationship'; '2 insecure parental relationships.' The criterion variable is somatic wellbeing. This was measured using an ordinal scale (no somatic symptoms; at least 1 somatic symptom experienced *sometimes*; at least 1 somatic symptom experienced *often*). The mediator variable was psychological wellbeing, measured using an ordinal scale (no psychological difficulty; borderline difficulty; clinically significant difficulty).

Exclusion and Inclusion Criteria

All participants' were aged between 9-14 years. This represented the widest age range for which all standardised measures could be appropriately administered. No children currently within the Social Care System, and/or under court supervision orders regarding contact with parent(s), were allowed to participate. It was not considered ethical to include these children, due to the difficulties they currently faced regarding their parental relationship(s). Inclusion would also introduce additional confounding variables. All participants were required to be fluent in English.

Recruitment and Sample Size

Participants were recruited using an opportunistic sampling procedure, primarily via social media but also via advertising (Appendix 16) across a range of community

settings and organisations, including schools and recreational groups. Drawing on Fritz and MacKinnon (2007), it is estimated that 204 participants would be required to achieve 80% power to demonstrate mediation. This is based on complete mediation occurring in addition to: i) a medium effect size (Fritz & MacKinnon, 2007), for the relationship between quality of parental attachment and psychological wellbeing and ii) a large effect size (Fritz & MacKinnon, 2007) for the relationship between psychological wellbeing and somatic wellbeing.

Participants

Participants were recruited between August 2015 and January 2016. Twenty-one children and adolescents (mean age = 11.38 years; standard deviation = 1.56) participated in the study. All participated via the online survey. The demographic characteristics of the sample are presented in Table 1.

Table 1: Demographic Characteristics of the Participant Group

Child Demographics	
	Number of Participants
Females	11
Males	10
Diagnosed with physical health condition	2
Contact with mental health services within the past year	1
White British	21
Parent and Family Demographics	
Two parent families	17
Single parent families	4
Married/Civil partnership/Co-habiting Parents	7
Divorced/Separated Parents	4
Diagnosed with physical health condition (<i>any parent</i>)	1
Contact with mental health services (<i>any parent</i>)	2
Main household earner full-time employed	2
Main household earner part-time employed	2
Main household earner full-time self-employed	2
Ethnicity of carer(s) White British	41
Ethnicity of carer(s) White & Black Caribbean	1

Measures

Parents completed a 'Demographic Information Sheet' (Appendix 17) in order to collect information which may be important to the subsequent interpretation of the data, primarily the child's physical and psychological diagnosed health status. Children also completed a 'Demographic Information Sheet' (Appendix 18), in addition to a range of measures. Measures took approximately 25 minutes to complete and included:

Experiences in Close Relationships-Revised Child's Version (Shortened form; ECR-RC; Brenning, Van Petegem, Soenens & Vanhalst, 2014; 8-14 years):

This measure indicates an individual's attachment-related anxiety – the extent to which an individual feels insecure or secure regarding the availability of their caregiver – and their attachment related avoidance – the extent to which an individual feels insecure or secure with regard to depending on their caregiver (Brenning, Van Petegem, Soenens & Vanhalst, 2014). The scale consists of 12 items rated using a seven point Likert scale and scores range from 6-44. The psychometric properties of the questionnaire was assessed by the authors. The shortened form of the original ECR-RC was shown to correlate strongly with the original validated full-length measure (0.90-0.94; $p < 0.001$). Internal consistency of the subscale was moderate, alpha coefficients ranging from 0.62 – 0.81 ($p < 0.001$) for anxiety and 0.46 – 0.90 ($p < 0.001$) for avoidance.

Revised Child Anxiety and Depression Scales – Child Version (RCADS; Shortened form; Chorpita, Yim, Moffitt, Umemoto & Francis, 2000; 6-18 years):

This measure consists of 25 items with subscales assessing child self-reports of depression and anxiety. All items are measured using a four point Likert scale. Within a
All subscales have strong internal consistency (alpha coefficients ranging from 0.73 –

0.82; $p < 0.001$), in addition to strong discriminant and convergent validity (Chorpita, Moffit & Gray, 2005).

Somatic Complaint List (SCL; Rieffe, Terwogt & Bosch, 2004; 9-15 years):

This measure assesses the frequency of somatic symptoms experienced within the last month. The list contains 11 items and scores range from 0-22. Frequency is measured according to a three point scale: never, sometimes and often. Good reliability is reported (alpha coefficient > 0.75 ; Jellesma, Rieffe & Terwogt, 2007). The measure also has strong convergent validity when compared to other established measures (Jellesma, Rieffe & Terwogt, 2007), including the Child Somatization Inventory (Garber, Walker & Zeman, 1991; Walker, Beck, Garber & Lambert, 2009).

Procedure

Information about the study was shared with local and national educational and recreational organisations primarily via email, but also via telephone. Organisations who expressed an interest in the study were provided with a 'Parent Information Sheet' (Appendix 19). All interested organisations subsequently circulated an information pack to parents of all eligible children which alongside the 'Parent Information Sheet,' included a 'Child Information Sheet' (Appendix 20), 'Parental Consent Form' (Appendix 21), 'Child Assent Form' (Appendix 22) and Parental Demographic Information' sheet. Parents were given the option of participating online or using paper forms distributed directly via the organisation or via the researcher on request. A sheet detailing sources of support for both parents (Appendix 23) and children (Appendix 24), if required following participation, was distributed alongside the measures.

Information about the study was also circulated via social media and community advertising, in addition to research and staff forums associated with the University of Hull and University of York. Information included a direct link to the online study in addition to researcher contact details to allow individuals to ask further questions or request to participate using paper forms. For safeguarding purposes all parents who supported their child to participate online were required to give a contact telephone number.

All parents/carers, irrespective of their method of recruitment or participation, were asked to allow their child the opportunity to complete the questionnaires free from input from others. All data sheets were coded to ensure anonymity.

Results

The study failed to recruit sufficient participants to meet the conditions necessary for statistical power. Consequently, it was not possible to conduct a thorough analysis. The raw data collected across participants is presented in Table 2. Individual correlations between pairs of variable were also carried out and are presented in Table 3. Figure 2 presents a stacked line graph displaying the trend in the data across the correlations. It is not possible to interpret any significant relationships from the descriptive data.

No clinically significant or borderline psychological health problems were evident in the sample. Scores on the SCL varied widely, with the majority of scores being low. However, with the exception of Participant 7, all children reported experiencing at least one somatic complaint within the last month, 15 reporting the pain to occur ‘sometimes’ while five children reported it to occur ‘often.’

Table 2: Raw data scores and demographic variables

Participant Number	Carer 1 Anxiety Score	Carer 2 Anxiety Score	Carer 1 Avoidance Score	Carer 2 Avoidance Score	Somatic Complaint List Score	Frequency of Somatic Complaints*	Depression/Anxiety T Score**	Diagnosed Medical Condition	In contact with Child and Adolescent Mental Health Service (CAMHS)
1	6	6	15	14	6	1	42	No	No
2	21	22	20	21	1	1	39	Yes (developmental disorder)	Yes
3	6	6	17	21	2	2	35	No	No
4	6	6	30	11	4	1	41	No	No
5	12	11	31	32	10	1	50	No	No
6	6	6	19	19	1	1	36	Yes (developmental disorder)	No
7	7	7	13	29	0	0	46	No	No
8	6	6	7	6	5	2	32	No	No
9	7	14	12	20	5	2	54	No	No
10	6	6	13	18	1	1	45	No	No
11	6	6	14	25	1	1	43	No	No
12	8	7	13	15	3	1	30	No	No
13	8	10	17	19	1	1	33	No	No
14	8	10	14	27	2	1	57	No	No
15	8	7	12	12	5	1	45	No	No

16	8	9	8	17	3	1	39	No	No
17	7	9	12	12	6	1	36	No	No
18	6	6	10	11	5	2	49	No	No
19	6	6	15	13	5	1	45	Yes (physical health problem)	No
20	6	6	11	18	4	2	40	No	No
21	6	6	6	12	11	1	44	No	No
Mean Score (Standard deviation)	8 (3)	8 (4)	14 (5)	18 (7)	4 (3)				
Range	6-21	6-22	6-31	6-32	0-11	0-2	30-57		

Notes:

Scores presented in **bold** are > mean score calculated across participants.

* 0 = no somatic symptoms; 1 = at least 1 somatic symptom experienced *sometimes*; 2 = at least 1 somatic symptom experienced *often*

** $T < 65$ = absence of a clinical difficulty; $T \geq 65$ = presence of a borderline clinical difficulty; $T \geq 70$ = a clinically meaningful difficulty

No significant linear relationships were demonstrated between any of the variables (Table 3). The majority of correlations were also shown to be very weak. All correlations between attachment and somatic score or frequency were negative, whereas correlations with depression and anxiety were positive. The correlation between ‘Parent 2 Avoidance’ scores and ‘Depression/Anxiety’ T scores was the only moderate correlation. The result suggests that, as avoidance scores increased, so did participant scores for depressions and anxiety. However, as this correlation was non-significant the results are not statistically meaningful.

Table 3: Pearson correlation coefficients for each pair of variables ($H_0: p = 0$; $H_1: p \neq 0$)

Pearson’s correlation coefficient (r)	Somatic Complaint List Score	Frequency of Somatic Complaints	Depression/Anxiety T Score
Parent 1 Anxiety Score	-0.09 (<i>p</i> = 0.707)	-0.12 (<i>p</i> = 0.417)	0.01 (<i>p</i> = 0.981)
Parent 2 Anxiety Score	-0.11 (<i>p</i> = 0.638)	-0.05 (<i>p</i> = 0.848)	0.15 (<i>p</i> = 0.514)
Parent 1 Avoidance Score	-0.04 (<i>p</i> = 0.854)	-0.26 (<i>p</i> = 0.265)	0.07 (<i>p</i> = 0.763)
Parent 2 Avoidance Score	-0.28 (<i>p</i> = 0.221)	-0.35 (<i>p</i> = 0.116)	0.41 (<i>p</i> = 0.063)
Somatic Complaint List Score			0.22 (<i>p</i> = 0.340)
Frequency of Somatic Complaints			-0.05 (<i>p</i> = 0.821)

Figure 2 demonstrates the extent of variation that exists in the data across variables. With respect to attachment, parental anxiety and avoidance scores ranged substantially across participants. However, scores for attachment anxiety tended to be lower and more consistent across participants for Parent 1 (Figure 3; Table 2). There was also much wider variation in attachment avoidance in both parents, across participants. Overall, trends can be seen to both support and refute the hypothesis. For example, Participant 5 has attachment scores above the average range, seen alongside above average somatic complaint scores and higher depression and anxiety T scores. In contrast Participant 13 who also had above average attachment scores, had a very low somatic complaint score alongside a lower level of depression and anxiety.

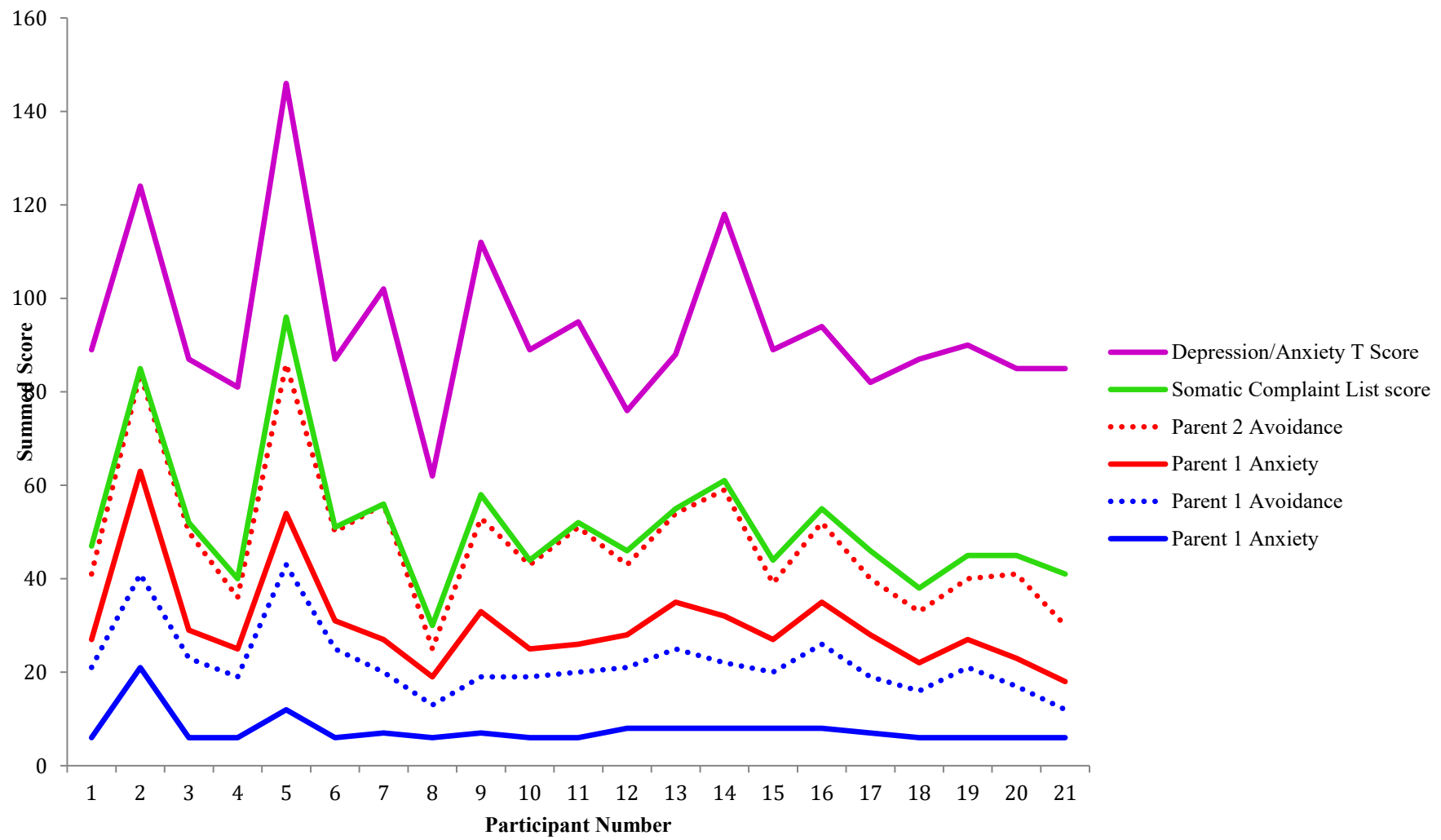


Figure 1: Stacked line graph representing the correlation between each variable score for each participant

Discussion

Based on the proposed mediation model (Figure 1), the study aimed to explore potential causal mechanisms of MUS within a community sample, examining specifically the correlation between parent-child attachment style, psychological health and somatic wellbeing. It was hypothesised that psychological wellbeing would mediate the association between the quality of the parent-child attachment and somatic wellbeing. Children with lower attachment anxiety and avoidance to both parents were hypothesised to experience reduced somatic and psychological health difficulties, in contrast to children with higher attachment anxiety and avoidance scores to both parents, there being hypothesised to experience increased somatic and psychological difficulties. Children with low anxiety or avoidance attachment to only one parent were hypothesised to experience different levels of somatic and psychological health difficulties from those with low attachment anxiety or avoidance with both parents. Due to the limited number of participants the study was substantially underpowered, which significantly reduced the reliability of the findings (Button et al., 2013). Comprehensive statistical analysis could not be performed and instead descriptive data is reported. Consequently, no definitive conclusions can be drawn from the data.

Overall, there were no significant correlations between any of the variables. This suggests that no linear association exists between attachment style, somatic difficulties or psychological wellbeing in children. Therefore, there is no evidence that attachment influences the physical health of children, or that psychological wellbeing plays a mediating role. However, failure to provide evidence of an association between attachment and psychological wellbeing conveys the extent to which the results are inherently limited as this association is widely supported in the literature. Failure to

replicate this indicates that the study may have failed to capture other valid associations between the variables.

Failure to show any significant associations may also be due to the relative absence of somatic or psychological health difficulties within the participant sample. As the majority of participants were healthy, both physical and psychologically, exploring an association with attachment within this group may be irrelevant. Previous studies exploring the relationship between attachment and physical health have typically utilised a clinical sample (Esposito et al., 2013; Simmons, Goldberg, Washington, Fischer-Fay & Maclusky, 1995). Therefore, the inclusion of a sample from a paediatric health setting may have resulted in the presence of significant associations.

There were methodological limitations in the study. First, use of a volunteer sample in itself may have produced a bias (Heiman, 2002). Furthermore, the sensitive nature of the topic may have created a bias towards participation of children whose parents experience a positive relationship with their child and who understand their child to be physically and psychologically healthy. The findings may also be subject to social desirability bias (van de Mortel, 2008), with children feeling obliged to portray their relationship with their parents and their own wellbeing in a positive light. However, it is hoped that participation via an anonymous online survey may have reduced this effect (Bordens & Abbott, 2008).

Despite inconclusive results, some interesting trends were seen. The association between the variables for Participant 5 provides support, albeit tentative, for the hypothesised mediation model. In addition, the emergence of trends in the data suggests further research would be beneficial, to explore further the validity of the mediation

model. As well as an increase in sample size, it would be useful to include paediatric participants with a higher incidence of physical and psychological difficulties, alongside community volunteers. This may allow a more robust evaluation of the model.

In conclusion, this study provided no evidence for the proposed mediation model. No significant linear associations were found between attachment style, somatic health or psychological wellbeing. However, the study was severely underpowered, with a very small sample size, and drew on largely symptom-free community participants. Any conclusion is therefore only speculative. Further robust research is necessary in order to systematically evaluate the validity of the model proposed.

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Appendix 16. Advertisement (Pilot Study)



Can You Help?

I am looking for children and young people aged 9-14 years to volunteer to take part in a research project by filling in some short questionnaires.

Hello, my name is Stephanie. I'm a Trainee Clinical Psychologist based at the University of Hull and I am looking for 9-14 year olds to volunteer to take part in a project I am carrying out.

The project explores how children's relationships at home may be linked to wellbeing. I'm hoping this project will help us to understand more about children's wellbeing in local communities across the UK.

The study has been approved by the University's Ethics Committee and all information will be kept anonymous and confidential.

What does the study involve?

- You will be asked to provide consent for your child to take part and to fill in 1 short questionnaire.
- Your child will then fill out 3 or 4 short questionnaires which will take them no more than 25 minutes to complete.

How can my child take part?

- If you would like more information or would like an information pack be sent to you by post or email, get in touch with me on 07502506491 or email me at s.r.burchill@2013.hull.ac.uk
- Alternatively, visit <https://hull.onlinesurveys.ac.uk/wellbeing> for more information and to take part in the project online.

Important Information

- The project has been approved by the University of Hull's Faculty of Health and Social Care Ethics Committee.
- You are under no obligation to participate and you can withdraw at any point.
- There is no cost involved in taking part in the project.
- You can ask any questions at any point.
- All information will be kept confidentially. Confidentiality will only be broken if there are concerns that you, your child or someone else is at risk of harm.
- Information gathered will be analysed by the researcher and the findings written-up and submitted for publication.

Thanks for your interest!

Appendix 17. Parent/Carer Demographic Information Sheet (Pilot Study)

Participant ID:

Parent/Carer Demographic Information Sheet

It would be very helpful if you could complete this demographic information sheet.

7. What is the current occupation of the main earner in your child’s household?

8. What is your current employment status of the main earner in your child’s household?

9. What is your ethnicity? What is the ethnicity of your child second primary carer (if applicable)?

Parent/Carer 1		Parent/Carer 2	
White		White	
British	<input type="checkbox"/>	British	<input type="checkbox"/>
Irish	<input type="checkbox"/>	Irish	<input type="checkbox"/>
Other White Background	<input type="checkbox"/>	Other White Background	<input type="checkbox"/>
Asian or Asian British		Asian or Asian British	
Indian	<input type="checkbox"/>	Indian	<input type="checkbox"/>
Pakistani	<input type="checkbox"/>	Pakistani	<input type="checkbox"/>
Bangladeshi	<input type="checkbox"/>	Bangladeshi	<input type="checkbox"/>
Other Asian background	<input type="checkbox"/>	Other Asian background	<input type="checkbox"/>
Black or Black British		Black or Black British	
Caribbean	<input type="checkbox"/>	Caribbean	<input type="checkbox"/>
African	<input type="checkbox"/>	African	<input type="checkbox"/>
Other Black background	<input type="checkbox"/>	Other Black background	<input type="checkbox"/>
Mixed		Mixed	
White & Black Caribbean	<input type="checkbox"/>	White & Black Caribbean	<input type="checkbox"/>
White & Black African	<input type="checkbox"/>	White & Black African	<input type="checkbox"/>
White & Asian	<input type="checkbox"/>	White & Asian	<input type="checkbox"/>
Other Mixed background	<input type="checkbox"/>	Other Mixed background	<input type="checkbox"/>
Other Ethnic Groups		Other Ethnic Groups	
Chinese	<input type="checkbox"/>	Chinese	<input type="checkbox"/>
Other Ethnic Group	<input type="checkbox"/>	Other Ethnic Group	<input type="checkbox"/>

10. What is your parental status? Two parent family
 Single Parent Family
 Other
 (please state):.....

11. What is the relationship between you and your child's other legal parent/carer?

- Married / Civil partnership / Cohabiting
- Divorced / Separated
- Widowed
- Other (please state):.....

12. Who lives permanently in the same household as your child? (please tick all that apply)

- Yourself
- Your child's other legal parent/carer
- Your partner (if not the child's other legal parent/carer)
- Your child's siblings
- Your child's step-siblings
- Your child's Grandparent(s)
- Other (please state):
.....
.....
.....
.....
.....

13. Have you, or your child's other primary carer(s), been diagnosed with any medical conditions? *OPTIONAL*

- Yes (if yes, please state the name of the condition(s) and year of diagnosis in _____ in the space below for each carer individually)
- No

.....
.....
.....
.....
.....

14. Are you or your child's other primary carer(s), currently in contact with, or ever previously been in contact with, Adult Mental Health Services?

OPTIONAL

- Yes (if yes, please state the year of contact in the space below for each carer individually)
- No

.....
.....
.....
.....
.....

The following 3 questions are about your child:

15. What is your child's age in years and months? Years..... Months.....

16. Does your child currently have any diagnosed medical conditions?

- Yes (if yes, please state the name of the condition(s) and year of diagnosis in the space below)
- No

.....
.....
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.....

17. Is your child currently in contact with, or have they ever previously been in contact with, Child and Adolescent Mental Health Services?

- Yes (if yes, please state the year of contact in the space below)
- No

.....
.....
.....
.....
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.....
.....

Appendix 18. Child Demographic Information Sheet (Pilot Study)

Participant ID:

Hello! Thank you for taking part in my project!

Before you fill in the questionnaires, please tell me 3 things about yourself:

1. **What is your gender?** Male
 Female
 Other (please state).....

2. **What is your ethnicity?** White
 Asian
 Black
 Chinese
 Other (please state):.....

3. **What language did you first learn to speak?**.....

Thanks for answering those questions!

You are now ready to start the questionnaires on the next page.

Appendix 19. Parent/Carer Participant Information Sheet (Pilot Study)



'An Exploration of the link between Children's Relationships and their Wellbeing'

Parent/Carer Information Sheet

Hello, my name is Stephanie Burchill and I'm a Trainee Clinical Psychologist on the Clinical Psychology Doctorate course at the University of Hull. As part of my course I am carrying out a research project and would like to invite you and your child to take part. The project explores children's physical and emotional health and the possible link both have to social relationships, specifically relationships with parents/carers. It is hoped that this will help inform the work of health professionals supporting children and their families.

Before you decide to take part, it is important for you to understand why the research is being carried out and what it will involve. These sheets will give you information about the project. Please read them carefully before deciding if you'd like to take part. If there is anything you are unsure about, or if you have any questions, please contact me using the details provided.

Part 1: What is the study and what does it involve?

What is the study about?

The study aims to understand more about the relationships children and young people have with those who look after them and how this may be linked to how they feel.

Who can take part in the study?

Children aged 9-14 years can participate. The only criteria are: 1) They are able to speak English fluently and 2) They are not currently under the care of the local authority.

What does the study involve?

The study involves your child filling out 3 or 4 questionnaires, which will take your child no longer than 25 minutes to complete.

The first questionnaire asks some questions about their relationship with their parent(s) or carer(s). Each question is in the form of a statement and children will be asked to rate how much they agree or disagree with it. If your child has 2 main carers, they will be asked to fill out a form for each of them.

The second questionnaire asks some questions about how they are feeling emotionally. Each question is in the form of a statement and they will be asked to indicate how often they feel each statement applies to them.

The third questionnaire asks some questions about how they have felt physically over the last month. Each question is in the form of a statement and they will be asked to indicate how often they feel each statement applies to them.

Your child will also be asked to give information about their gender, ethnicity and native language.

Finally, you will be asked to fill out a demographic information sheet. This will ask you for some information about your job and employment status and about who lives in your family. It will also ask you to indicate if either you, your child's other main carer (if applicable), or your child, have any diagnosed medical conditions (yes or no; name of the condition(s); date of diagnosis) and if you have had contact with any mental health services (yes or no; year of contact). However, it is optional whether you choose to give your own health information – you are not obliged to give this information.

Why have I been contacted about this study and my child invited to participate?

You have been contacted because you are the parent/carer of a child between the ages of 9-14 years. The study is open to all eligible children and adolescents within the UK.

Do I have to take part?

No, it is completely up to you and your child to choose whether or not to take part. If you both decide that you would like to participate in the study you will be asked to sign a consent form. Your child will also be asked to sign an assent form, indicating that they are happy to participate. You are free to withdraw from the study at any point before I start to analyse the data. You do not have to give a reason why.

What will happen if I decide that I would like my child to take part?

Your child can take part via an online survey by visiting <https://hull.onlinesurveys.ac.uk/wellbeing>. Alternatively, your child can take part using paper forms – simply contact me directly using the details on the next page to request these. However, regardless of how you choose to participate you will first be asked to complete the 'Parent/Carer Consent Form', after which your child will be asked to complete the 'Child and Adolescent Assent Form.' Once these forms have been submitted/received you and your child will be invited to complete the questionnaires.

Will it cost anything?

No, there is no cost involved in taking part in this study.

Will it benefit me or my child in any way?

There may not be any immediate benefit for you or your child in participating in the study. However, your child's contribution to the study will increase understanding of the link between social relationships and wellbeing. This will then inform the work of professionals caring for children and young people.

What are the possible disadvantages of taking part?

It is possible that completing the questionnaires may prompt children to ask questions and potentially feel worried or sad about their relationships at home and their wellbeing. However, this is considered very unlikely as children do not typically find these questionnaires upsetting. If you do have any concerns about this though, please feel free to contact me to discuss this further.

Are there any risks involved in taking part in this study?

No risks have been identified for participants taking part in this study.

If after reading the information in Part 1 you are still interested in taking part, please continue to read Part 2 for further details.

Part 2: More detailed information about the research

Will my child taking part in this study be kept confidential?

Yes, participation in the study and all information gathered from you and your child will be kept confidentially. Confidentiality will only be broken if any information raises concerns for the safety of you, your child or anyone else. If this happens, you will be informed prior to the necessary safeguarding procedures being implemented.

Also, all information will be made anonymous. To ensure this we will give you and your child a unique code at the start of the study and all information sheets collected will have this code on instead of your name or your child's name. The list of codes will be stored separately from the identifiable data (i.e. the name of you and your child and your contact details) to make sure everything is kept anonymous.

Only the researcher and other authorised persons (Research Supervisor) will have access to the information. All the information collected will be stored securely on University Departmental premises. This data will be stored for ten years following the completion of the study to comply with legal and ethical standards. After 10 years all information will be destroyed.

What will happen to the results of the study?

The results of the study will be collected and analysed by the researcher. The findings will then be written-up and submitted for publication in a scientific journal. However, at no point will any information be included which could identify you or your child. You can also choose to be informed of the results of the study following its completion.

What if I change my mind?

You are free to change your mind and withdraw from the study at any point without giving a reason, so long as you inform the researcher prior to the information being analysed.

What if there is a problem?

If at any point during the study you have any questions or concerns you can contact the researcher using the details provided. The researcher will do their best to answer any questions raised.

Who has reviewed the study?

The study has been reviewed and approved by the Faculty of Health and Social Care's Ethics Committee. This committee is a group of independent people who make sure the study does not harm the safety of those participating.

Thank you for taking the time to read this information sheet.

For more information or to take part online visit

<https://hull.onlinesurveys.ac.uk/wellbeing>

Alternatively, contact me (Stephanie Burchill, Trainee Clinical Psychologist) on **07502506491** or at **s.r.burchill@2013.hull.ac.uk** for more information or to request paper forms be sent to you via post or email.

Appendix 20. Child Information Sheet (Pilot Study)

'An exploration of the link between children's relationships and how they feel'

Hello, I'm Stephanie Burchill and I'm a Trainee Clinical Psychologist at the University of Hull. As part of my course I am doing a project and am looking for children and young people who are 9-14 years old to take part.

What is the project about?

The project is all about trying to understand **how your relationships with the adults** that look after you **might be linked to how you feel**.



What do I have to do?

You will have to fill in 3 or 4 questionnaires. For each questionnaire, all you have to do is select an answer from a list. The questionnaires will ask about...

- 1) What you think about your relationship with your parent(s) or carer(s).
If you have 2 parents or carers you will be asked to fill out 2 of these questionnaires.
- 2) How you are feeling emotionally.
- 3) How you are feeling physically.



If you, and your parent(s)/carer(s), decide that you would like to take part you will be able to fill in these questionnaires on the computer, or using paper forms - whichever you would prefer!

Your parent(s)/carer(s) will also fill out a form telling me a little bit of information about your general health and some information about them too.

★ Important Information



- You do not have to take part if you don't want to.
- You can change your mind about taking part at any point up until I start to investigate the information I've gathered - you won't get into any trouble and nobody will mind.
- You can ask any questions at any time.
- The answers you give to the questions will be kept private.
- All the information you give me will be kept in a locked cabinet in the University of Hull or on a password secure memory stick.
- No one will know you have taken part in the study unless you or your parent(s)/carer(s) choose to tell people.
- The only time I will have to tell someone about you or what you have said is if I am worried that you or somebody else is not safe - I will always tell you first if I need to do this though.
- When I finish the project I will write a report explaining what I have found out and other people might want to read this.
- If you are worried or upset about something while taking part in the project I will help you to find someone to talk to about this.

Would you like to take part in this project?

If YES, talk to your parent(s)/carer(s). If they are also happy for you to take part just make sure you fill in the form called 'Child and Adolescent Assent Form.' This form lets me know that you understand what the project is about and that you are happy to take part.



Appendix 21. Parent/Carer Consent Form (Pilot Study)

Parent/Carer Consent Form

Researcher: Stephanie Burchill

Title of study: *An exploration of the link between children's relationships and their wellbeing*

Please read the statements below carefully and if you agree to them please sign your initials in the boxes below

1. I/we confirm to have read the information sheet about the above research project and if I/we had any questions, I/we have had the opportunity to ask them and they have been answered satisfactorily.

2. I/We understand what the project is for and what it involves.

3. I/We understand that participation in the project is voluntary and that we can withdraw at any time without giving a reason.

4. I/We understand that my child's participation, information about us and contact details will be kept confidentially.

5. I/We have considered all of the information provided and would like my child to participate in the study.

Name of parent/carersSignature of parent/carers.....

DateContact telephone

no:.....

Please indicate if you would like to be informed of the findings of the study:

- Yes, I do wish to be informed of the findings of the study:

Please provide an email or postal address:

.....
.....
.....
.....
.....

No, I do not wish to be informed of the findings of the study:

If you have any queries please telephone me on 07502506491 or email me on s.r.burchill@2013.hull.ac.uk

Appendix 22. Child Assent Form (Pilot Study)

Child and Adolescent Assent Form

- I have been asked whether I would be **happy** to take part.



- I have been told **what** the study is about.



- I know that all the information I give will be kept **private** and will be kept **safely & securely**.



- I know that I can **change my mind** about taking part at any time, so long as I do this before the information is investigated.



Please answer the question over the page by ticking one of the boxes:

- I am happy to take part in the project []



- I do not want to take part in the project []



Name:.....

Date:.....

Appendix 23. Parent/Carer ‘Sources of Support’ Sheet (Pilot Study)

Sources of Support

If this study has raised any concerns regarding your wellbeing or the wellbeing of your child, the following resources may be helpful:

GP: It is recommended that you contact your GP for advice.

Relate: This charity provides relationship support, including counselling, for people of all ages and backgrounds.

www.relate.org.uk

Telephone: 0300 100 1234

Young Minds: A resource providing information and support for young people and their families regarding any concerns they have about a young person’s emotional and mental health.

www.youngminds.org.uk

Parent Helpline: 0808 802 5544

NSPCC: A resource providing advice for parents/carers regarding how to support their children with a range of issues related to emotional and physical wellbeing.

www.nspcc.org.uk

If you have any queries specifically regarding your child’s participation in the study please feel free to contact the researcher, **Stephanie Burchill**, on:

Email: s.r.burchill@2013.hull.ac.uk

Telephone: 07502506491

Appendix 24. Child 'Sources of Support' Sheet (Pilot Study)

Thank you very much for taking part in my project!



If you have any questions you can contact me using these details:

Name: Stephanie Burchill

Telephone: 07502506491

Email: s.r.burchill@2013.hull.ac.uk



If after completing the questionnaires you are feeling worried or sad, it is important you have someone to talk to, such as your parent/carer. But, if you don't feel able to talk to them there are other places where you can get some help:

Childline: This charity helps children and young people who are worried or sad about things happening in their life. They have a website which has lots of information on it, or if you would prefer, you can call their telephone line and have a chat with someone.



www.childline.org.uk

Telephone: 0800 1111

Young Minds: This charity runs a website which gives information and advice to children and young people who are struggling with difficult feelings.

www.youngminds.org.uk

Appendix 25. Epistemological Statement

Epistemology refers to the theory of knowledge, in other words beliefs regarding the manner in which knowledge is acquired, subsequently dictating how we understand truth to be known (Snape & Spencer, 2003). This is intrinsically connected to ontology, the philosophical stance informing beliefs regarding what knowledge is, in other words, one's view of what constitutes reality and of what there is to know about the world (Snape & Spencer, 2003). How the researcher positions themselves in respect to epistemology and ontology will inform the approach, strategy of inquiry and method utilised (Creswell, 2003; Carter & Little, 2007). Therefore, it is important that the assumptions underlying research are carefully considered to ensure that they are aligned with the perspectives of the researcher and are that they are consistent with the objectives of the study.

Traditionally, research was understood to adopt one of two approaches, either quantitative or qualitative. Quantitative research adopts an ontological stance referred to as 'realism,' a positivist philosophy. According to this philosophy the researcher seeks to test a specified theory based on a hypothesis through the collection of data using objective measures, which are analysed using statistical procedures (Creswell, 2003). Proponents of this approach believe that social phenomena are bound by measureable components just as in the field of natural science. It is also thought that an objective reality exists – a reality that is independent of the researcher (Snape & Spencer, 2003). Therefore, the concept of neutrality is highly valued, with the aim to conduct research free from bias and guided by empirically based hypotheses (Johnson & Onwuegbuzie, 2004). In contrast, qualitative research adopts an ontological stance referred to as 'relativism,' an interpretative philosophy. Qualitative researchers propose that knowledge and truth is 'socially constructed' (Berger & Luckmann, 1967). In this sense,

truth is not a single entity, rather it is a subjective reality which each individual creates based upon interactions with others and the world around them. This approach is idiographic, the aim being to understand individuals' unique experiences and the meaning attributed to those rather than drawing a generalised conclusion regarding the laws of the world (Ponteretto, 2005). Intrinsic to the process is the idea that knowledge gained from the research process evolves as a result of the interaction between researcher and participant. In this way, the researcher plays a significant role in determining meaning as their own experiences and beliefs will undoubtedly influence interpretation (Smith & Osborn, 2008). For those who adopt a purist stance, the epistemological and ontological assumptions of qualitative and quantitative approaches differ significantly to the point that combining the approaches is deemed impossible (Smith, 1983; Onwuegbuzie & Leech, 2005). However, there are varying perspectives regarding the "quantitative-qualitative paradigm" (Onwuegbuzie & Leech, 2005, p376) with different proponents advocating different positions along the continuum (Johnson & Onwuegbuzie, 2004). Other stances on the continuum include the situationalist stance and the pragmatic stance (Onwuegbuzie & Leech, 2005). For situationalists, an *either/or* stance is accepted. It is suggested that both approaches have merit and should be utilised according to the objective of the research. However, use of a single method is considered best practice (Onwuegbuzie & Leech, 2005). Pragmatists share the view that the objective of the research should determine the research method used. However, they disagree that the philosophy underlying the methodologies are contradictory in nature and instead propose that both approaches are in fact complementary and should be utilised side-by-side within a single study (Johnson & Onwuegbuzie, 2004).

The research presented in this thesis portfolio is consistent with the situationalist stance in which different methodologies are appreciated for their different strengths and

applied according to the question being posed. The research presented draws primarily upon qualitative methodology, seeking to develop current understanding of MUS in children by exploring the experiences of education professionals. However, presented alongside this research is a quantitative pilot study. Drawing upon empirical theory, this study sought to collect objective data to assess a mediation model accounting for the presence of MUS in children within a community setting. This would provide an understanding, which could be generalisable to the wider population. In this sense, both approaches were utilised to achieve different objectives.

The qualitative study was developed following the completion of the quantitative study. Due to difficulties recruiting participants the study failed to reach statistical power sufficient to draw robust conclusions. Consequently the findings could only be considered to represent a small pilot study. This led me to have to reconsider my approach to understanding MUS in children (See Appendix 26 for a more detailed account of the research development process, including personal reflection).

Considering my personal epistemological stance as a situationalist researcher I was open to the possibility of exploring this subject area from a different perspective, such as the interpretative stance.

The addition of an interpretive approach seemed compatible with the initial study, as the nature of the model under investigation – although couched in theory – remained exploratory in nature. Furthermore, employing a qualitative approach provided the opportunity to inform the future development, and thereby strengthen the rigour, of the quantitative model proposed. Through the exploration of the lived experiences of professionals encountering MUS in their everyday lives, the researcher's beliefs underpinning the model were indirectly evaluated and challenged. It was hoped that this

would serve as a preliminary assessment of the face validity of the model and provide guidance regarding potential amendments and future developments.

Interpretative Phenomenological Analysis (IPA; Smith, Flowers & Larkin, 2009) was the qualitative strategy employed. However, prior to the selection of IPA other qualitative approaches were considered, with Thematic Analysis (TA; Braun & Clarke, 2006) being the most seriously contemplated. Although TA has been proposed to sit more comfortably with the realist approach adopted by the pilot study (Braun & Clarke, 2006), IPA was chosen to guide the collection and analysis of data for its superior fit with the study's exploratory aims – a study conducted in the absence of pre-existing theory or hypotheses (Smith & Osborn, 2008). In addition, IPA was deemed more appropriate due to its idiographic focus, seeking to explore each individual's unique lived experiences of MUS, the meaning they attribute to this and the sense they make of their world (Smith, Flowers & Larkin, 2009), rather than seeking to identify themes to in order to simply understand MUS.

IPA is based upon the process of interpretation by the researcher, as they attempt to draw meaning from the experiences shared with them by the participant. However, in keeping with the interpretive stance, meaning is not made in isolation and this process is intrinsically collaborative as the way in which the researcher themselves experiences the world impacts upon the way in which it is interpreted. This is the principle of hermeneutics (Crotty, 2003; Smith, & Osborn, 2008). Therefore, it is essential that the researcher engage in the process of reflexivity, examining how their subjective understanding of the topic under study may be influencing the research process (Finlay, 2002). It was especially important for me to engage in reflexive practices considering the realist position I had adopted while conducting the pilot study – a study which

portrayed clearly beliefs regarding the role of the family, in particular the role of the parent-child attachment relationship, in determining not only the psychological wellbeing of the child but also, indirectly, their physical wellbeing. Although based on pre-existing psychological theory and research, my own lived experiences and clinical interests as a Trainee Clinical Psychologist also influenced the model. Having seen MUS manifest in a peer from very early on, I was struck by how powerfully the body could communicate internal distress and how somatic experiences often mirrored an individual's state of mind. As an outside observer, the role of family within this individual's life appeared important to making sense of these difficulties. This likely drew from my own experience of family and personal reflections on how relationships within the home equipped me to negotiate the challenges of life. Consequently, I have remained a strong advocate for understanding problems within the systems in which they occur. After commencing Clinical Psychology training I became increasingly aware of the prominence given to understanding distress in children that was expressed through more explicit means, such as challenging behaviours, rather than understanding distress that was expressed internally such as is the case with functional health problems. I was also struck by witnessing the powerlessness of the child within external systems, in terms of determining how their difficulties were understood and managed. Overall, through a range of both personal and professional experiences the lens through which I saw MUS, the child and the family developed. It was therefore essential to bare in mind my stance when embarking on research utilising an IPA approach. Reflexivity primarily took the form of introspection (Finlay, 2002), through the use of a reflective diary in addition to discussions with peers, engaging in a reflective practice group and through personal research supervision. Through these processes I was able to carefully consider and bring into conscious awareness my own position regarding the issue of MUS in children throughout the entire research process – from the formation of the

initial idea, through to data collection, analysis and ultimately, to the act of writing the empirical paper.

In conclusion, a situationalist stance is adopted here – a stance that appreciates the benefits of each approach and supports the flexible use of each depending on the objectives. It is hoped that adopting this stance has helped to bring a greater breadth of understanding to the issue of MUS in children.

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Appendix 26. Reflective Statement

Empirical Study

As a first year trainee the prospect of choosing a research area felt very exciting. Yet entering such unfamiliar territory was also a daunting prospect. As much as I loved to learn through the theories and findings of others, to fill the shoes of the ‘researcher’ felt like a formidable task. However, though one of my most challenging experiences, this process has taught me invaluable lessons which I hope to carry forward with me on the next step of my journey as a qualified Clinical Psychologist.

Choosing a topic...

While still a young teenager, my interest in psychology began to develop and even then I was drawn to the idea of one day working with children and families. Subsequently, during both secondary school and as an undergraduate, I volunteered in a number of settings which encouraged me even more to study psychology. Some of my most personally-defining experiences came prior to starting university, when, as a youth and children’s worker, I lived and worked in a close-knit, inner city community in the UK. Out of this, my interest in working with children, young people and families grew. Having the opportunity to be a part of the lives of those in this community left a mark on me. One of my most important lessons was that, understanding the child, meant understanding the world they lived in and the importance of family, culture, community and education. It was this passion that drew me to approach Dr Annette Schlösser.

Certain as I was about wanting to focus my research on the wellbeing of children, I was unsure of where to start. Initially, I explored many ideas but felt that I was gaining little ground in finding a way forward. It was only when I was introduced to the work of Heather Geddes that a spark came. I was very taken by her ideas of applying attachment

theory, beyond the realm of family life, and within the classroom. Her writings very much resonated with me, helping me in making sense of my own experiences of working with children, families and schools. I was drawn to exploring for myself her ideas, and those of others, around the topic of attachment theory and its application in the classroom. However, the more I read, the more aware I became of the emphasis placed on understanding children who presented with overt, challenging behaviours. I found myself questioning what was being done to understand the experiences of children in the ‘background’, the quiet children, whose internal world was not so easily accessible. As I began to question and explore internal expressions of distress I was drawn to the area of psychosomatic difficulties. During my own time at school I had witnessed the destructive effects of psychosomatic illness personally and, reflecting on this, the framework of attachment seemed to make so much sense. At this stage in the process, I felt a sense of curiosity and excitement, as I began to play around with questions and ideas. I knew I wanted to explore the relationship between parental attachment and medically unexplained symptoms but, inspired by Geddes (2006), I also wanted to understand how school fitted in. This most probably resonated, given my own memories of school and the manner in which my own relationships with teachers had shaped and defined certain periods of schooling.

Getting started...

After that ideas began to come together and after much discussion, research and reflection, followed by more discussion, research and reflection, it seemed that I was approaching...’a finished idea’. However, I soon learned that a ‘finished idea’ needed to be moulded and refined many times before the final research question was reached. A significant part of this process was developing and understanding my own position as a researcher. I become aware that I was unquestionably a ‘situationalist’ researcher. I felt

naturally very open to different ways of understanding the world. Most important to me was choosing the right approach for the question I was trying to answer.

After a few more months had passed I decided that I wanted to explore the triad between a child's attachment with their parents, their relationship with their teacher and their somatic wellbeing, favouring a quantitative approach. I was specifically keen to understand if a good relationship with a teacher could buffer a child from any difficulties manifest in the presence of difficult relationships at home. I felt hugely inspired by the prospect of testing out a theory and finally felt that my research was taking off the ground. However, in keeping with the realities of the research process things did not run smoothly. After further research, including many email exchanges with researchers in the field, it ultimately became clear that incorporating teachers was not going to be feasible due to a lack of validated child self-report measures. However, content that my study was still exploring new ground and contributing to the literature I reframed my question, limiting the scope of the study to explore the role of the parent-child attachment relationship and somatic wellbeing, ultimately proposing an explanatory mediation model incorporating psychological wellbeing. It was a fantastic feeling, seeing it all take shape, particularly the day I launched the online survey – it felt great to be putting this theory out into the world to test and explore!

Hitting a roadblock...

Not long after launching, the study hit the most substantial roadblock – failure to recruit sufficient participants. This was extremely disappointing for me. Having poured so much energy and enthusiasm into building relationships with community organisations and schools, as well as reaching out into the public arena to share my ideas with families, it was all to no avail! The positive responses from the members of the public I

had encountered and from some schools was not being translated into participants. With the minimal data I had obtained all I could do was run very simple analysis (Appendix 15). With the recruitment period failing to produce participants, I had a valuable opportunity for reflection and space to think about the best way forward. In the end I felt I must reconsider my approach altogether. I still had faith in the fundamental idea underpinning my research – to understand more about MUS within the context of systemic relationships. Whatever my next step, I should not lose sight of the importance of this as a research area. I needed to look at the problem from a different perspective.

So, in a bid to move forward positively, I used this set back as an opportunity to revisit the role of teachers in respect of this issue. Already convinced by their importance, I felt strongly drawn to understanding teacher's perspectives on the issue of children with MUS and their families. It immediately made sense to seek to step into the shoes of the teacher. Although one door had closed for the moment I felt I had found another door to open.

A new journey...

And so a new journey began...not only had I changed my research question, I had also changed my whole approach. Embarking on a qualitative approach, no longer was I seeking to test a theory or model, I was seeking to make sense of people's lived experiences – to step into their world.

My first task was to understand more about qualitative methodologies, in order to ensure that I was using the best approach. Interpretative Phenomenological Analysis (IPA) stood out as the way forward. Looking back, I am incredibly grateful to have had the opportunity to carry out research using this framework. I immediately connected

with it as a research methodology. Throughout the clinical aspect of training, my greatest enjoyment has been to experience the connection with a client in the therapy room, through conversation and collaborative exploration – IPA seemed to capture so much of these ideas. I am very grateful to have had the (unexpected) chance to discover this type of connection away from the clinical setting, in the role of a researcher.

I was greatly encouraged by the positive response from teachers. So many were interested in my research, it was confirmation to me of the relevance of MUS to children within schools today. As I embarked on the interviews I experienced a real sense of joy and excitement through the connection with the participants – sharing in their process of sense-making and embarking on my own. The IPA process seemed to come very naturally – much more than statistics ever did! Following completion of the interviews I was excited to begin the analysis process and to begin to unravel the sense teachers made of their experiences. Navigating this process with the first transcript was slow but very quickly I gained momentum and a clear picture began to emerge from the data. I thoroughly enjoyed, not only attempting to make sense of teachers' worlds, but also attempting to make sense of teachers making sense of the child's world. It was fascinating!

Nevertheless, the process was not easy, especially considering the shorter timeframe available for the amended study. On a practical note, the book by Jonathan Smith, Paul Flowers and Michael Larkin (2009) was especially helpful. As an inexperienced IPA researcher, I found their writings provided an invaluable map to guide this part of my journey. I am also very grateful for support I received from IPA researchers in the Department and from peers who were using IPA. It was very helpful to have an opportunity to share perspectives and experiences, for support and, in addition, to

ensure reflexivity in my approach. This was especially important as I had come from a clearly defined position when carrying out my quantitative research.

After such a long journey, at last I was ready to begin the 'write-up'. Putting words to paper marked a significant step from my thesis becoming mere ideas and data to an empirical paper with purpose. It was truly satisfying when it was finally complete.

Looking back, not only have I thoroughly enjoyed my unexpected journey into the qualitative world but engaging with teachers on this issue has been significant in other ways. Most importantly, it has helped shape my understanding of the original quantitative study. Teachers' perspectives on the meaning of MUS and the importance of systemic variables, including parents, provide encouragement that the quantitative study is worth pursuing in the future. However, and possibly more importantly, it has added to my knowledge of what may have been limitations of my initial quantitative study. For example, it was clear how important it was for teachers to maintain and foster positive relationships with parents. In retrospect, it is understandable that schools may not have felt comfortable with sharing or promoting information about the quantitative study, for fear of being perceived as taking a position of judgement on parents. It was also interesting that teachers who were parents themselves, typically adopted a protective position when reflecting on the role of parents. Whilst acknowledging the parents' role in relation to children's difficulties, teachers often did not want to overly implicate them or hold them solely responsible. This demonstrated the sensitive nature of the topic and offered an insight into how parents may have felt when faced with information about the quantitative study.

Overall, in addition to feeling passionate about continuing research and exploration into more ‘unknowns’ in the area of MUS in children, I also hope to find more opportunities for research using IPA. I feel lucky that out of a research process which has had its share of setbacks, I have found a subject area and research methodology that I thoroughly enjoy – I hope to contribute more in the future.

Systematic Literature Review

Having read widely in support of developing my empirical paper, I felt it would be relatively straightforward to find an idea for an SLR that would make a useful contribution. However, significant frustration hit when, time and time again, I found that all my ideas had already been completed and published – many just within the last few months!

As I continued to read and consider my next step, I was increasingly drawn to the intervention literature. Personally, it felt important to explore and research an area that would be meaningful for the therapeutic aspect of the profession of clinical psychology. Given that my interest in intervention was very firm, I began to search for meaningful gaps, understanding that often these were easy to miss and that thought and perseverance was needed. I soon realised that, despite the emphasis on the role of family in relation to MUS within the literature, and numerous references to systemic interventions, no review had sought to evaluate the efficacy of these interventions. Due to the vast number of intervention studies within the field of MUS in children, it was important to give priority to understanding a particular type of psychosomatic illness, and to make the review manageable and realistic, considering time and resources. After reading about the prominence of stomach pains in children I was naturally drawn to consider this difficulty specifically. Before long I identified a topic area and, following

this, I began the process of developing and carrying out the SLR, a task which was relatively straightforward, following the months of frustrating searches.

Overall, the SLR process, from analysing papers to writing up the findings, was much more enjoyable than I had anticipated. It was particularly meaningful to have the opportunity to become very familiar with an area of research addressing effective interventions, particularly as I look ahead to qualification with the hope of embarking on a career as a clinical psychologist.

Reference

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