# The Development of a Parent Observation Measure of Mindfulness in Children **(POMM-C)**

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**Submitted for the award of Doctor of Clinical Psychology**

**Clinical Psychology Unit**

**University of Sheffield**

**January 2017**

## Declaration

This thesis is submitted for the Doctorate in Clinical Psychology at the University of Sheffield. It has not been submitted to any other institution, or for any other qualification.

## Word count section

| Section | Word count |
|---|---|
| Literature review | **7991** |
| Including references | **9663** |
| Including references and appendices | **10, 312** |
| Research report | **11, 003** |
| Including references | **13, 061** |
| Including references and appendices | **13, 750** |
| Including title page for whole thesis, declaration, acknowledgements, word | **24, 680** |

**Abstract**

This thesis is comprised of a literature review and an empirical study. The aim of this review is to provide an integration of the literature on parenting style and child emotion regulation outcomes, in minority cultural groups residing within a dominant Western culture. Seven studies were included in this review. The search terms used were variations of "parenting", "culture" and "emotion regulation". These studies were critically evaluated and rated against a quality appraisal tool. There was some evidence to suggest cross cultural differences in parenting, emotion socialisation and emotion regulation outcomes for children. The results are discussed in the conceptual context of existing cultural models. Finally, the clinical implications for practice are discussed and recommendations for future research also suggested.

The empirical study concerned the development and validation of a Parent Observation Measure of Mindfulness in Children (POMM-C). Procedures for developing the POMM-C items are described. Exploratory factor analysis revealed a two factor structure; Acting with awareness and Observing. The POMM-C was found to have good internal consistency and test-retest reliability. The construct validity of the POMM-C also demonstrated some promising results. The factor structure and construct validity of the POMM-C are discussed in relation to the conceptualisation of mindfulness in children and how mindfulness changes as children develop through childhood. It is anticipated that the development of this measure may also further our understanding of the multifaceted nature of mindfulness in children. The limitations of the study are discussed, as are implications for clinical practice and future directions.

**Acknowledgements**

I would like to thank my research supervisors, Dr Lisa-Marie Emerson and Dr Georgina Rowse for their support and guidance throughout the research process. I would also like to thank the experts who gave of their valuable time to provide feedback. To the parents who took the time to complete the measures, I am eternally grateful. I am also very appreciative of my family for their unwavering support and understanding throughout this process. Most of all, I would like to thank Mark and my two little boys, Alexander and Adam, for their patience and understanding.

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# Part One: Literature Review

# Parenting styles and emotion regulation outcomes in children from minority cultures residing in a dominant Western culture: A systematic review

## Abstract

### Background

Parenting styles and emotional socialisation are factors which may determine children's emotion regulation. The cultural context is important in shaping how parents socialise their children about emotions and long term psychological outcomes. In the context of multi-cultural societies it is also important to consider parenting styles in minority cultures. The aim of this review is to explore parenting styles and child emotion regulation outcomes of minority cultures within the context of a dominant Western culture.

### Method

A systematic review was undertaken through searching electronic databases (Scopus, PsycINFO and Web of Science). The search terms used were variations of "parenting", "culture" and "emotion regulation". A validated checklist was used to rate the studies.

### Results

Seven studies were included in this review; four used a cross sectional design and three used a longitudinal design. The quality rating for most papers was fair to good. The studies employed a varied number of parenting and emotion regulation outcome measures. Across the studies there was evidence to suggest cross cultural differences in parenting, emotion socialisation and emotion regulation.

### Conclusion

This review highlights the importance of considering the impact of culture on parenting style, emotion socialisation and emotion regulation. This may improve our understanding about culturally appropriate approaches for children and families from diverse cultural groups.

**Practitioner points**

- It is important to understand family interactions within cultural systems in order to formulate culturally appropriate care plans for families.
- A process of cultural reciprocity is key, consideration of one's cultural values as a clinician and attempting to accommodate the diverse cultural values of the family.

## Introduction

Emotional socialisation may determine children's regulation of emotions which is important in relation to a number of mental health outcomes, including social competence and psychological adjustment (Zeman, Perry-Parrish, & Stegall, 2006). Emotional socialisation may be defined as the way in which parents teach children about emotions, and encompasses a number of tasks, including parental expression of emotion, reactions to emotion and discussion of emotions with children (Eisenberg, Cumberland, & Spinrad, 1998). Parental expression of emotion within the family is thought to influence the social and emotional development of children (Eisenberg, Liew, & Pidada, 2001). Positive expression of emotions has been linked to greater social competence and better adjustment in children. (Eisenberg et al., 1998). Parents who express positive emotion model this behaviour to their children. In this way, emotion socialisation is viewed to take place in the emotional context created by parenting style (Saarni, 1993). The cultural context is also important in shaping how parents socialise their children about emotions. However, the majority of research into parenting styles and emotional socialisation has been conducted with European American samples. In the context of expanding multi-cultural societies, it is therefore also important to consider parenting styles within minority cultural groups. Lamborn and Felbab (2003) highlight the importance of examining whether parenting styles of diverse cultural groups may lead to equivalent psychological outcomes for children. Therefore, the focus of this review is to review parenting styles and child emotion regulation outcomes of minority cultures within the context of a dominant Western culture.

**Parenting styles, emotional socialisation and emotion regulation**

A number of specific parenting styles have been identified which influence the way in which parents socialise their children about emotions. Baumrind (1971) identified three parenting styles: authoritative, authoritarian and permissive. Authoritative parenting, described as a supportive parenting style, is defined as warm, responsive and promoting autonomy of the child (Baumrind, 1971). Authoritative parenting is associated with better emotion regulation and social competency in children (Eisenberg et al., 2003), with reduced displays of anger intensity in peer conflict situations (Eisenberg & Fabes, 1994). Thus, authoritative parenting has been associated with more adaptive psychological outcomes for children (Jambunathan, Burts, & Pierce, 2000). Conversely, an authoritarian parenting style is characterised by non-supportive parenting that is high in demandingness and rigidity but low in responsiveness (Baumrind, 1971). Authoritarian parenting has been associated with greater adjustment problems in children (Eisenberg & Murphy, 1995). Permissive parenting is characterized by parental involvement, with few behavioural expectations, demands or controls being placed on children by parents. Permissive parenting has been associated with impulsive control difficulties in children (Baumrind, 1971). Although both authoritative and authoritarian parenting styles are driven by parental control, authoritative parenting is more responsive to the child's needs, while authoritarian parenting is driven by psychological control. Psychological control has been described as intrusive control by which parents inhibit or manipulate the child's emotional expression (Barber, Olsen, & Shagle, 1994).

Parenting styles are also guided by goals parents hold for their children. Parents vary in their aspirations for helping their children understand, express, and

regulate their emotions. Some parents may believe emotions should be suppressed while other parents may encourage children to express and label their emotions (Gottman, Katz, & Hoove, 1997). These differences in parenting styles may be understood within the context of culture.

**Culture, parenting styles and socialisation of emotions**

As context is crucial in shaping child development (Bronfenbrenner, 1986), it is therefore important to understand emotion socialisation within the larger cultural context (Cole, Tamang, & Shrestha, 2006). Culture refers to a set of values, beliefs, and customs which are inter-generationally transmitted (Cole & Tan, 2007). Parents' emotional socialisation practice can vary according to cultural values and beliefs about emotions (Friedlmeier, Corapaci, & Cole, 2011). Halberstadt and Lozada (2011) suggest that parent socialisation of emotions is located in parental belief systems, practices and cultural structures. Experience, meanings and emotional expression are most likely influenced by a cultural context, customs and societal expectations (Mesquita & Albert, 2007). It has been suggested that parental socialisation of emotions may be understood in terms of their relative emphasis on collectivism and individualism (Halberstadt & Lozada, 2011).

**Cultural models**

Pivotal cross-cultural research by Hofstede (1980, 1983, 1991, 2001, 2010) may further add to our understanding of parenting styles within the context of cultural values. Hofstede's cultural dimensions model describes the degree to which countries assign values according to six key dimensions. The first dimension is the acceptance of inequality or power distance, the extent to which power inequality may be accepted and valued in society. The second dimension, 'uncertainty avoidance', refers to a society's need for rules and lack of tolerance for ambiguity. Societies with strong

uncertainty avoidance value structure and certainty, whereas societies with weak uncertainty avoidance, value tolerance and dislike rules. These first two dimensions may be relevant to parenting styles with high parental control and boundaries. The third dimension, collectivism verses individualism, refers to the value assigned to the individual's membership. This dimension has been the most influential in cross-cultural parenting research (see Kagitçibasi, 1996a, 1996b, 2005), as parenting style may be guided by value attached to personal attitudes and societal norms. The fourth dimension is the extent to which masculinity or femininity goals are espoused in a given society. Hofstede suggests that societies who value masculinity are more geared towards an emphasis on work related goals and assertiveness. Whereas, societies favouring femininity may attach greater value to nurturing others and fostering inter-relatedness. The fifth dimension describes short-term and long-term orientation. Short-term orientation refers to valuing tradition, while societies with long-term orientation value adaptation, and are more pragmatic about the future. The sixth dimension of indulgence verses restraint (Hofstede, 2010) relates to a society that allows relatively free gratification of basic desires related to personal enjoyment, while restraint refers to a society that suppresses personal gratification and regulates enjoyment by strict codes of conduct. The fifth and sixth dimensions may relate to parenting style according to the values assigned to tradition and societal obligation.

More specifically, cultural models for understanding parenting styles have also been proposed, which fit within the context of individualistic and collectivist societies. Three relevant cultural models have been postulated by Kagitçibasi (1996a, 1996b, 2005). The 'model of independence' describes the child as having a sense of autonomy and uniqueness. Parental socialisation goals, therefore, emphasise internal mental states and personal qualities to support enhancement of the self and personal

achievement. The 'model of interdependence' describes the child as interrelated with others members of the family and larger community. Socialisation goals therefore focus on social values which allow for harmonic functioning of the collective (Kagitçibasi, 1996a; Keller, 2003b). Thirdly, the 'model of autonomous relatedness' combines interpersonal interdependence with autonomous functioning, emphasising the social values of family as well as the individual values of the child. Socialisation goals, therefore, emphasise both integration into the family as well as personal autonomy (Kagitçibasi, 1996a, 2005).

These cultural models are important in understanding parenting practice in non-western societies, specifically in regards to dominant theory such as the work of Baumrind (1971), which advocates an authoritative parenting style. Individualistic societies, for example North America, emphasise the importance of the internal states of individuals, such as their needs and desires (Markus & Kitayama, 1991). Consequently, the open expression of emotions is perceived as an appropriate expression of the independent self. Parenting goals therefore may be guided by individual values promoting emotional competence and understanding of emotions (Chan, Bowes, & Wyer, 2009). In collectivistic societies, for example in an East Asian context, the individual is viewed as being connected to others with the emphasis on maintaining harmony (Triandis, 1995), thus parenting goals are perceived as relational (Markus & Kitayama, 1991). In collectivist societies, emotional control is desirable because personal feelings are relatively less important compared with the potential impact on relationships as a result of displaying emotions (Butler, Lee, & Gross, 2007). Within a collectivistic context, parental control may be normative regardless of the child's emotional disposition. Because emotional restraint is seen as adaptive in these cultures, parents may use suppression

to help children regulate or to adapt to societal pressures (Matsumoto et al., 2008).

**Parenting styles and emotion regulation outcomes**

Psychological control has been linked to externalising and internalising problems in European American children (El-Sheikh, Hinnant, & Erath, 2010). Others have found that psychological control is associated with externalising and internalising problems for both Chinese and European American children (Zhou, Eisenberg, Wang, & Reiser, 2004). A study with Chinese parents, found that this relationship between parental control and externalising behaviours was greater when punitive parenting was used (Tao, Zhou, & Wang, 2010). It has been suggested that Chinese mothers use greater parental control which may be more adaptive within Chinese culture, but less so in the European American context (Rudy & Grusec, 2006). Studies with African American families, however, have found that psychological control may benefit children when high levels of warmth is experienced in the family context (McLoyd & Smith, 2002). More adaptive emotion regulation has been predicted by higher displays of maternal warmth, responsiveness, and less harshness in ethnically and culturally diverse children (Eisenberg, Smith, Sadovsky, & Spinrad, 2004). Similarly, authoritative parenting, has been consistently found to have beneficial effects on children's development in different ethnic groups (Jambunathan, Burts, & Pierce, 2000). However, Chao and Tseng (2002) suggest that the beneficial effects of authoritative parenting may not be found in Chinese families as Chinese parents tend to adopt different parenting styles. Despite this Chan et al., (2009) found that Chinese Hong-Kong mothers assumed authoritative parenting most often, valuing both relational and individual emotional proficiency in their children.

## Aim

Although there is a complex picture emerging, it appears from the literature that distinct cultural values may guide parenting styles and influence emotion regulation outcomes in children. This is relevant to present day multi-cultural societies in considering how diverse minority cultural groups within a predominant culture, may utilise varied parenting styles. Parenting research had been dominated by Western parenting models, with increasing focus on cross-cultural research across nations over the past few decades. However, less attention had been given to parenting styles and child outcomes of minority ethnic cultures residing in a Western culture. This is important to consider, as culture specific parenting styles and emotion socialisation goals may differ from the dominant Western cultural values, and may be viewed by the dominant culture as maladaptive. The aim of this review is to explore parenting styles and child emotion regulation outcomes of minority cultures within the context of a dominant Western culture. In light of the prevailing Western parenting models, the discussion will be framed within the context of Hofstede's cultural dimensions model. The purpose is not to advocate a particular cultural parenting style, but instead to consider the family parenting styles that are psychologically healthy and adaptive for minority cultural groups. The results may be relevant in considering culturally appropriate mental health services for families from diverse cultural groups.

# Method

## Search Strategy

A systematic literature search was conducted between January and March 2016. Three databases were searched: Web of Science, PsycINFO (via OVID), and Scopus. Search terms were divided into three main themes: parenting, culture and

emotional regulation. Parenting terms were: parenting styles *, parental control *, and parental socialisation*. Emotion regulation terms were: emotional regulation* and emotional expression*. Culture terms were culture* and cross cultural*. Search terms within each theme were combined with the Boolean operator "OR", whilst terms across concepts were combined with "AND". In addition, reference lists from the selected papers were searched by hand checking forward and backward citations.

Studies were included if they met all of the following criteria: 1) Investigated one or more minority cultural groups within a dominant western culture; 2) used validated measures of adjustment outcomes related to children's emotion regulation; 3) used a validated measure of parenting and observations of parenting; 4) quantitative in design and/or analysis; 5) peer reviewed; 6) published in English; 7) published between January 2000, as highlighted in the initial scoping of literature few studies met the specified criteria prior to this date, and 10th March 2016 when the final search was conducted. Studies were excluded if one or more of the following criteria were met: 1) language other than English; 2) study protocol; 3) a dissertation; 4) case-study; 5) unpublished article; 6) book chapter; 7) literature review 8) parenting intervention study. An overview of the process can be seen in figure 1.

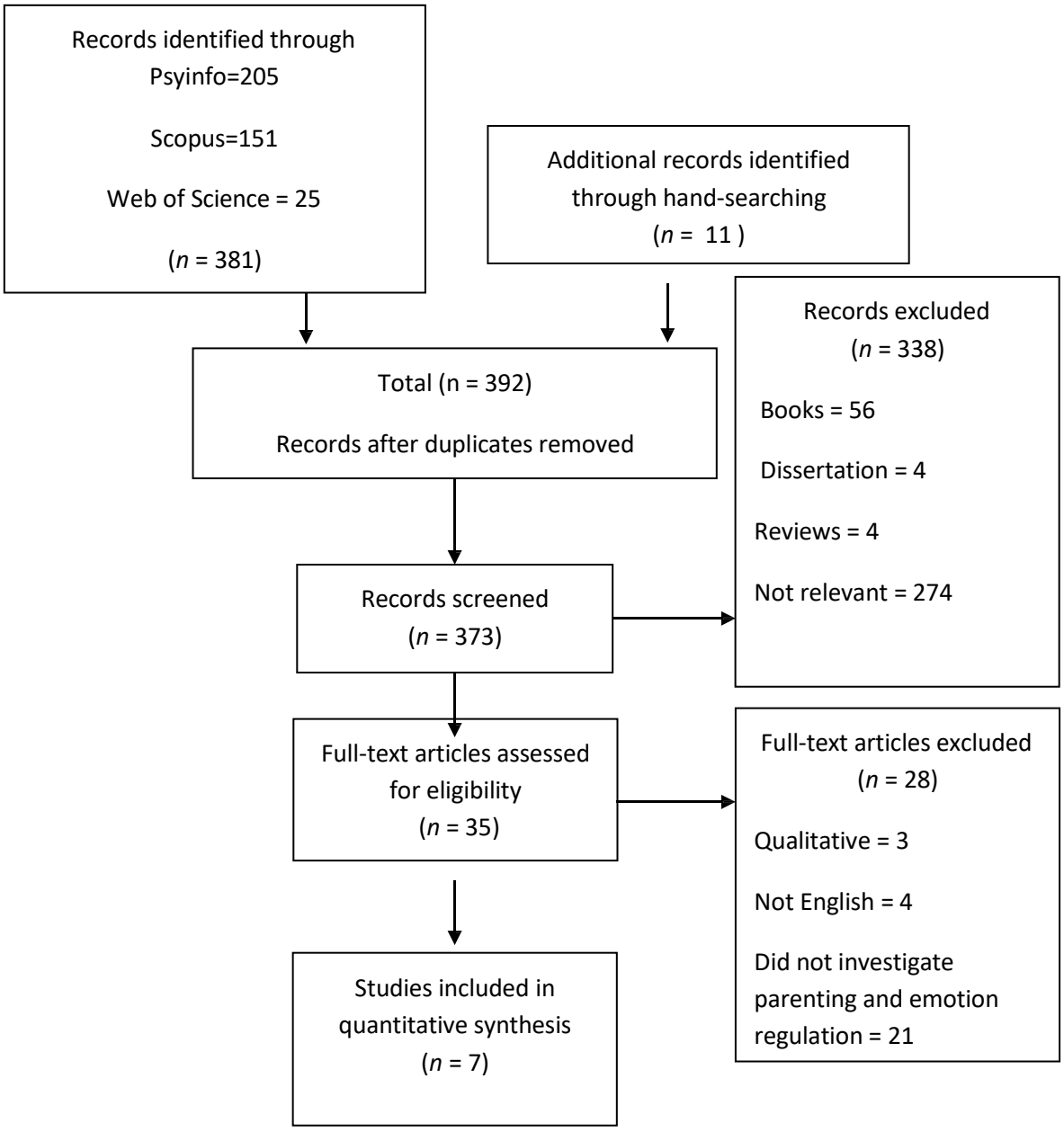
**Quality assessment of studies**

Study quality was measured against the criteria defined by the QualSyst (Kmet, Lee, & Cook, 2004, see Appendix A). This checklist is a recognised quality assessment tool for systematic reviews (See Chastin et al., 2015). It is comprised of two separate checklists for quantitative and qualitative studies. The scoring system for quantitative studies is based on instruments developed by Cho & Bero (1994) and Timmer, Sutherland & Hilsden (2003). The checklist consists of 14 items which are

scored depending on whether the criteria were met. The scoring scale 0-2 was used to assess criteria, where 0 represents criteria not meant, 1 partially met and 2 fully met. Items not applicable to a particular study design were marked "n/a" and were excluded from the calculation of the summary score. A summary score was calculated for each paper by summing the total score obtained across relevant items and dividing by the total possible score. A score of 1(100%) was therefore the highest rating possible.

Kmet et al. (2004) suggest the cut-off points for excluding papers may be determined by the distribution of the quality scores. The possible cut-off points suggested ranged from (liberal cut-off) < .55 to (conservative cut-off) < .75. Due to the small number of papers identified for the review all papers were included. Almost all papers ($n$ = 6) scored over .70, with the exception of one paper, which scored .6. See table 1 for further details. One paper scored .6, three papers scored .7 and three papers .8. To assess reliability of the ratings, a post-graduate researcher independently rated a subsample of papers ($n$ = 3). Inter-reliability agreement was moderate (Cohen's $k$ = 0.41), between the two raters (Altman, 1991). Discrepancies between ratings were agreed via detailed discussions.

**Figure 1. Flow chart detailing search process adapted from Moher, Liberati, Tetzlaff, Altman & The PRISMA GROUP (2009).**



## Results

### Design

Seven studies were included in the final review. Of these four employed a cross sectional design. The remaining three studies employed a longitudinal survey design one of which (Bowie et al., 2011) was conducted over a five year period. The length of the other two longitudinal studies (Lugo-Candelas, Harvey, & Breaux, 2015; Supplee, Skuban, Shaw, & Prout, 2009) was not specified. However, Lugo-Candelas et al. (2015) described the project as part of a larger study investigating the early development of attention deficit and hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD). The seven studies included are summarised in table 1.

### Quality

Most of the studies were of reasonable quality, reporting appropriate methods for the research question. Studies which were not clear about research question, study characteristics, and the statistics employed for example, were awarded lower ratings as they did not meet the full criteria on the checklist.

### Participants

All studies included parents, over half ($n$ = 4) of the studies included children and few ($n$ = 2) included teachers. The age of children in the studies ranged from 18 months to 13 years old. Four studies made cross cultural comparisons (Bowie et al., 2011; Louie, Oh, & Lau, 2003; Lugo-Candelas et al., 2015; Supplee et al., 2009). The participants were European American, Black American, Latin American, Chinese American, Korean American, Chinese immigrants living in the United States of America (USA) and Iranian, Egyptian, Indian, Pakistani immigrants living in

Canada.

**Measures**

The seven studies employed a range of measures to assess different aspects of parenting. These included an authoritative parenting style, parental emotional coaching, authoritarian, parental expressivity of emotion, emotional socialisation, and parental control.

Emotion regulation outcomes in children were also measured by a variety of child, parent and teacher measures. The areas assessed were ability to regulate emotion ($n$ = 1), anxiety and depression ($n$ = 2), inhibitory control ($n$ = 1), and impulsivity ($n$ = 1), externalising behaviours ($n$ = 1), social competence ($n$ = 1), positive and negative emotion ($n$ = 1), strengths and difficulties ($n$ = 1), self-esteem ($n$ = 1) and negative emotions ($n$ = 1). Only one study utilised a measure of cultural values (Chen, Zhou, Main, & Lee, 2015). One study assessed parental psychological wellbeing (Cheah, Leung, Tahseen, & Schultz, 2009). See Appendix B for a description of the measures.

Table 1
*Studies included in the literature review*

| Authors | Design | N | Participants | Measures | Statistics | Results | Quality rating |
|---|---|---|---|---|---|---|---|
| Bowie et al. (2011): USA | 5 year longitudinal study | 99 families | Black American, European American and Bi-racial mothers, fathers and children | PMEI, BASC-C, | Anova, Pearson correlation | Higher level of coaching about anger in African American families mothers linked to lower depressive symptoms in children, $r = .43$, $p<.01$ | .81 |
| Chen et al. (2015): USA | Cross sectional | 325 children | Chinese parents, teachers | SEFQ, CSAS, CBQ | Correlation, regression analysis | Parents self-report of negative expressivity was related to their own report of children's regulation, $r = .20$, $p<.05$ | .86 |
| Cheah et al. (2009): USA | Cross sectional | 85 mothers | Chinese mothers | SDQ, PSDQ, RWBS, PDH | Mediation analysis | Chinese immigrant mothers highly endorsed the use of authoritative parenting with warmth, $r = .68$, $p<.001$ | .77 |
| Louie et al. (2013): USA and (Korea) | Cross sectional | 127 children and primary caregiver dyads | European American children and parents, Asian American and Korean children and parents | PACES, PSDQ, Lab-TAB | Hierarchical regression analysis | Parental control was associated with less expression of exuberance in Asian American children $r = .26$, $p<.05$ | .77 |
| Lugo-Candelas et al (2015): USA | Longitudinal | 134 children and mother dyads | Latina and European American children and mothers | PRS, coding of parent child interactions | Anova, Ancova, correlation | Confronting style was associated with higher externalising for European American children $r = .43$, $p<.001$, but not for Latina children | .81 |

| Authors | Design | N | Participants | Measures | Statistics | Results | Quality rating |
|---|---|---|---|---|---|---|---|
| Supplee et al. (2009): USA | Longitudinal | Sample 1 120 parent dyads Sample 2 115 parent dyads | African American and European American mothers and boys, teachers | CBC, MPQ, TBC, TRF, coding of parent child interactions | Manova, Hierarchical regression | Comfort seeking linked to later externalising behaviours in African American children, *r* =.43, p<.05 | .64 |
| Rudy & Grusec. (2006): Canada | Cross sectional | Collectivist group33 mother child dyads Individualist group 32 child mother dyads | Egyptian, Iranian, Iraqi, Indian, Pakistani and European Canadian mothers and children | BFS, CRPR, SPP-C | Manova, Mancova | Authoritarian parenting was endorsed by collectivist parents but did not affect self-esteem in children, *r* = .47, p=.05 | .76 |

1) Key: BFS= Bardis Familism Scale, ASC-C = Behaviour Assessment for Children, CBQ= Child Behaviour Questionnaire, CRPR= Child Rearing Practice Report, CSAS =Cultural and Social Acculturation Scale ERC= Emotion regulation Checklist, PMEI= Parent Emotion interview, PSDQ= Parenting Styles Dimensions Questionnaire, RWBS= The Psychological Well-Being Scale, PACES=Parent Attitude to Child , Lab-TAB= Laboratory Temperament Assessment Battery, PRS- BASC-Parenting Rating Scale, RWBS, The Psychological Wellbeing Scale, SCBE =Social Competence Behaviour Edition, SDQ=Strengths and Difficulties Questionnaire, SEFQ= Self-Expressiveness in the Family Questionnaire, SPP-C= Self Perception Profile for Children, T-CRS= Teacher-Child Rating Scale.

Effect size *r* = .10 (small effect), *r* = .30 (medium effect) and *r* = .50 (large effect) (Cohen, 1988, 1992).

## Synthesis of findings

As the studies included in the review focussed on varied parenting styles, mainly authoritative and authoritarian styles, and emotional socialisation practices, the results are summarised under two main headings.

**Parenting styles.** A number of parenting styles were explored in the studies, including parental control. In a study conducted in the USA by Louie et al. (2013), Asian American and Korean parents were found to endorse greater parental control than European American parents. Parental psychological control, defined as emotion suppression and shaming, was associated with less expression of sadness and exuberance, in Asian American children (Asian American children were defined as Chinese and Korean). Greater parental control was associated with greater expression of anger and exuberance, in European American families but not in Asian American families. The authors suggest their findings provide moderate support that cultural context moderates the link between parental control and emotional expression. This study had a number of strengths, such as direct observations of children's emotional expression and the inclusion of three cultural groups, which allowed for cross cultural comparison. However, the sample size was relatively small and socioeconomic status was not reported. The authors also used parental control and psychological control inter-changeably, when in fact psychological control is only one aspect of parental control (see Barber et al., 1994).

Rudy and Grusec (2006) investigated authoritarian parenting in both collectivist (Egyptian, Iranian, Iraqi, Indian and Pakistani parents) and individualistic communities (European Canadians) living in Canada. The study showed that collectivist communities endorsed authoritarian parenting more than individualistic communities. However, collectivist parents did not have negative views about their

children and the children's self-esteem was not lower. For the European Canadian parents, authoritarian parenting was associated with greater negative feelings and cognitions. The authors suggest that in the individualistic group, the negative emotions and cognitions associated with authoritarian parenting may be more damaging to children's self-esteem than an authoritarian parenting style. Rudy and Grusec conclude that authoritarian parenting in collectivist societies may not have the same meaning as this style of parenting has in individualistic societies. The study has a number of strengths, for example the sample included a number of cultural groups in the collectivist sample to compare with the predominant individualistic culture. However, cultural beliefs and the impact of acculturation to the Canadian host culture were not explored. This would have been useful in relation to immigrants identification with the host culture and their culture, and the potential impact on their perceptions of authoritarian parenting.

Conversely another study investigated authoritative parenting in Chinese immigrant mothers living in the USA (Cheah et al., 2009). The investigators found that mothers highly endorsed the use of authoritative parenting style and authoritative parenting was associated with better behavioural and attentional control in Chinese American children. Psychological adjustment was also measured in the mothers included in the study. The results suggested mothers, who reported greater wellbeing and lower levels of stress were more like to engage in authoritative parenting. This was the only study in the review that measured parents' psychological wellbeing and the impact on parenting. However, limitations are similar to other studies (see Louie et al., 2013), as fathers were excluded, the sample was homogenous in regards to education attainment and acculturation was not measured.

The above studies focus on varied dimensions of parenting; however, the findings suggest that an authoritative style of parenting, parental warmth and parental-responsiveness is associated with better child outcomes across cultures. Parental control was related to greater externalising behaviours in European American children and less externalising behaviours in Asian American children. The findings suggest that parental control was adaptive in some cultures but not in others. The perceptions associated with using greater parental control and authoritarian parenting, in relation to culture norms, may be more detrimental as opposed to the style of parenting.

**Socialisation of emotions and parental emotional expression.** The studies investigating an aspect of parental socialisation of emotions found some cultural differences. Bowie et al. (2011) investigated parental socialisation of emotions and emotional coaching. Emotional coaching refers to the way in which parents teach children to recognise their emotions and to use strategies to manage difficult emotions. No significant differences were found in levels of emotional coaching across African American, European American and Bi-racial parents residing in the USA. However, a higher level of coaching about anger by African American mothers was linked to lower depressive symptoms in children and similar findings were found with multi-racial fathers. Conversely, European American parents' level of coaching children about anger was associated with higher levels of anxiety in children. Lower dysregulation of emotion in African American mothers was linked to lower internalising in children. The authors concluded that socialisation in African American families about strong emotions may play a stronger role in child outcomes than in other families. Particular strengths of this study were the longitudinal design, the comparison of three cultural groups and the inclusion of fathers. However, the

sample size was relatively small and the authors did not provide an adequate description of the Bi-racial sub sample of parents.

Lugo-Candelas, Harvey and Breaux (2015) also found cultural differences in emotion expression and emotion socialisation by parents. Although Latina and American mothers residing in the USA used similar emotional socialisation practices, Latina mothers tended to minimise or ignore their children's negative emotions. However, this socialisation practice did not negatively affect children's regulation of emotion. Appeasing and discussing behaviours were associated with greater externalising behaviours in European American children but less externalising behaviours in Latina children. The inclusion of two cultural groups and a longitudinal design are particular strengths of the study, although the authors neglected to mention the duration of the study. Additionally the sample was relatively small and included mothers only.

Similarly, Supplee et al. (2009) investigated emotion regulation strategies of toddlers from African American and European American families living in the USA. They hypothesised that emotion regulation strategies used by toddlers, such as comfort seeking and self-soothing, would be viewed more negatively by African American mothers and would be associated with later externalising behaviours. The authors used two samples of toddler boys, following up the second sample until the boys were six to seven years old. The use of physical comfort seeking and self-soothing was related to later externalising behaviours in African American children but not in European American children. The authors suggest that the difference may be partly attributed to African American mothers having negative valence towards self-soothing as self-reliance is promoted at an early age. A particular strength of the study, was that economic status was controlled for, this variable has previously been

found to confound culture and ethnicity. However, this study was awarded a lower quality rating of .64 as some methodological issues were noted, such as the sample was limited to boys and the authors made assumptions without assessing cultural beliefs about parenting.

The way in which parents model emotion regulation and expression of emotion in families was also investigated. Chen and colleagues (2015) investigated foreign born Chinese American parents' cultural orientations, and observed and reported expression, in relation to children's emotional regulation. They found that parents who had higher American orientation as measured by level of acculturation, displayed higher emotional expressivity. Parents' self- report of expressivity was related to their own report of their children's regulation, while observed expressivity was related to both teacher and parent ratings of children's regulation. Parents observed anger was negatively associated with emotional regulation, where as parents positive affect was not related to children's regulation. This was a higher quality study and a notable strength of this study was the inclusion of direct parent child observations. This study was also the only study in the review to include a measure of acculturation.

In summary, these studies highlight the importance of examining culture specific socialisation behaviours. Cultural differences in the way mothers socialise their children about emotions were found (Lugo-Candelas et al., 2015). Cultural differences in the relationships between socialisation of emotions and emotion regulation outcomes, such as anger and sadness, and self-soothing behaviours were also found (Bowie at al., 2011; Supplee et al., 2009). Differences in the way emotions are expressed and the cultural value attached to the display of emotion was also associated with varying child outcomes. Differences in the way minority cultures

socialised their children about emotions in comparison to the predominant western culture was also highlighted.

**Critical appraisal**

A number of methodological limitations emerged whilst evaluating the studies.

**Sample size.** In general, the sample was reported in different ways and in many studies the total sample size was unclear. For example, the study by Bowie et al. (2011) reported 99 families, and collected data from both parents and child, however the exact number of individuals recruited was unclear. Chen et al. (2015), included teacher reports but the authors were not specific about the number of teachers included. In the aforementioned study, authors reported the number of parents but did not report the number of children, again being left to speculate the number was equal to the number of parents.

**Participant characteristics.** The reporting of participant characteristics across the studies was varied, with 100 % reporting age of the children and only 45% (3.15 studies) reporting age of the parents. Of the studies included in the review, five studies included mothers only, and one had a majority of mothers in their sample (Chen at al., 2015). Only one study had an equal proportion of married mothers and fathers (Bowie et al., 2011). This limitation does not help us to understand the relationship between the parenting approaches fathers use within a given cultural context. However, gender of the children was reported by all the studies and more equally distributed. In five studies the samples were predominantly middle class, which is acknowledged by the authors as a limitation. As such this limits generalisability to the population in question.

**Measures**. A number of measures were used to assess emotion regulation in

children. All the studies utilised a parent observation measure of emotion regulation outcomes, which may be more reliable than a self-report measures, as a child's ability to accurately describe their emotions may vary according to understanding and level of cognitive development (Harter, 1982, 1986). In addition, two studies triangulated reporting of emotion regulation outcomes from teachers, parents and children, which was a particular strength. The studies also measured varied aspects of emotion regulation, which has been questioned as a reliable construct (Cole, Martin, & Dennis, 2004). For example some studies utilised measures of internalising symptoms such as anxiety and depression (See Bowie et al., 2011).

The measures assessing parenting also varied, as did the style of parenting being measured. Most studies focussed on one aspect of parenting. Five studies relied on parent self-report of their parenting style. However, reliance on parent report may introduce bias as parents may want to be viewed in a positive way. Two studies included direct observations of parenting behaviours, one of which only included observations of parenting (Supplee et al., 2009), and the other (Chen et al., 2015), included other modes of reporting on parenting behaviour, which was a particular strength. In Chen et al.'s study (2015), differences in parent reported expression and observation was noted, which gives rise to questions about how these constructs are measured. Audio-recorded parent-child interactions were also included in one study (Lugo-Candelas et al., 2015) which may have provided a richer description of parent-child interaction. However, knowledge of being recorded may have also influenced mothers' behaviour.

The way in which culture is defined and measured also warrants further attention. In their study, Lugo-Candelas et al.'s (2015) use of the terms 'culture' and 'ethnicity' were not clearly defined. The authors acknowledge that ethnicity was

used as a 'proxy' for culture: however, this distinction could have been made clearer. Bowie et al. (2011) did not unpick the cultural differences found in parenting by Black American parents, or describe the characteristics of multi-racial parents. Also, many investigators used national or ethnic groups as an indication of culture. However, little attention was awarded to measuring cultural beliefs about emotional expression. In fact, six studies have not directly measured cultural mechanisms with the exception of Chen et al. (2015). In their study they utilised a measure of cultural orientation and acculturation. This is a significant limitation of the literature as all studies investigated a minority culture residing in majority culture. The impact of both cultures, culture of origin and host culture, should have been awarded greater attention. Although all the studies were interested in cultural context, only four studies (Bowie et al., 2011; Lugo-Candelas et al., 2015; Louie et al., 2013; Rudy & Grusec, 2006) included participants from different cultural groups to make cross-cultural comparisons.

**Study design and analysis.** Design limitations were present across the studies. Four studies used a cross sectional design, with only three using a longitudinal design (Bowie et al., 2011; Lugo-Candelas et al., 2015; Supplee et al., 2009). Longitudinal studies may be more comprehensive in examining the relationship of parenting and emotion regulation over time allowing for exploration of mediating and moderating variables. Correlation and regression analyses, which were utilised in the majority of the studies ($n$ = 5), indicate a relationship between variables but do not provide the direction of causality. It is likely that there is a reciprocal relationship between parenting and children's emotional regulation, study designs and analyses plans that take account of this would therefore be more robust. Three studies utilised analyses of variance (Bowie et al., 2011; Lugo-Candelas et al.,

2015; Rudy & Grusec, 2006) which allowed for group differences to be explored.

## Discussion

To the author's knowledge, this is the first review to consider the impact of cultural values and parenting styles on emotion regulation outcomes in children, focussing on minority ethnic cultures residing within a dominant Western culture. The studies focussed on different parenting styles, emotion socialisation practices and emotion regulation outcomes in children. From the studies included in this review, there is evidence to suggest parenting styles are context bound constructs and the extent to which they influence child functioning, may depend on cultural norms and values. Parenting styles associated with healthy emotional development in European American families may not be the same parenting practices with positive emotional outcomes in other groups (Bowie et al., 2011). Thus the use of authoritative or authoritarian parenting styles may be more adaptive in certain cultures guided by socialisation goals and cultural expectations. In addition to parenting style, cultural differences in terms of parental emotion socialisation were also found to be guided by specific parental goals (see Chen et al., 2015; Lugo-Candelas et al., 2015; Supplee et al., 2009).

The findings suggest that authoritarian parenting and parental control may be adaptive in collectivist cultures but less so in an individualistic culture. Authoritarian parenting and parental control were associated with less externalising behaviours in children from collectivist groups (Louie et al., 2013; Rudy & Grusec, 2006). These associations may be partly understood in relation to the dimensions of collectivism verses individualism, uncertainty avoidance and power distance dimensions, as proposed in Hofstede's model of cultural dimensions (1980, 1983, 1991). Deference to authority is more valued in collectivist societies (Hofstede, 1983) and is viewed as

an important aspect of parenting (Keller, 2007). In societies with lower reverence for authority figures and individuals, parents may value children more as equals and raise them to be self-sufficient and independent (Kagisticibasi, 2005). In fact, Kagitcibasi (1997a) has previously suggested that hierarchy is an important aspect of understanding collectivism and individualism. Similarly, an authoritarian parenting style may be accepted in societies who have greater uncertainty avoidance, as rules, structure and clarity are valued. These cultural expectations and values may render authoritarian parenting more socially acceptable in collectivist societies with a greater power differential and reliance on rules, thus leading to better emotion regulation outcomes in children.

Hoefstede's dimension of short term and long term orientation may also be applicable to authoritarian parenting, particularly in relation to societies valuing the past and upholding of tradition. Similarly, Kagitçibasi (1996a) 'model of interdependence' was based on traditional agrarian societies who valued the collective effort to help sustain and benefit the family. Interconnectivity is valued, and socialisation goals therefore focus on goals which allow for harmonic functioning of the collective (Kagitçibasi, 1996a; Keller, 2003b). Kagitçibasi (1996a) has argued that in interdependent cultures, children view parental control as normative, therefore this parenting style is not perceived by children as parental rejection. However, in individualistic societies, parental control may be viewed by children as hostile and lacking warmth. For example Rudy and Grusec (2001) found that low levels of parental warmth were associated with authoritarian parenting for European Canadians but not found for Egyptian Canadians. Louie et al. (2013) also found parental control was associated with greater expression of anger and sadness in European American children. However, this association between parental control

and externalising symptoms was not found in Asian American children in this study. It may be that the use of greater parental control and authoritarian parenting, if not in keeping with the culturally accepted norm, may be associated with negative cognitive perceptions and emotions. These parental cognitions and emotions may be more detrimental to child related outcomes. As Rudy and Grusec (2006) found, greater parental negative emotions and cognitions were associated with authoritarian parenting in a sample of European Canadian mothers. This style of parenting may be incongruent with individualist values, which promote authoritative parenting styles. As postulated by Kagitçibasi's (1996a) the 'model of independence' may be more applicable to individualistic societies, as parenting is focussed on internal mental states and personal qualities to support enhancement of the self.

Cultural differences in emotion expression and the value attached to the display of emotion, were also shown to be important in the reviewed literature (Louie et al., 2013; Chen et al., 2015). Hofstede's (1980, 1983, 1990) cultural dimension of indulgence verses restraint may also be applicable to parent socialisation and expression of emotion. Societies scoring higher on restraint tend to value self-control and have stricter social behaviour norms. Chen et al. (2015) found that for immigrants who had stronger cultural ties to their native Chinese culture, less parental expression of emotion was observed. It may be adaptive for children to suppress emotions in Chinese culture, as emotion suppression may disrupt relationships, whilst social harmony is more valued (Suveg et al., 2014). Parents' emotion socialisation goals may therefore focus on social norms that allow for harmonic functioning of the collective, more specifically the family unit (Kagitçibasi,1996a; Keller, 2003b). However, in societies high on indulgence and individualist values, the expression of emotion is promoted. Similarly, Hofstede's

(1980, 1983, 1990) cultural dimension of masculinity verses femininity may also be helpful in understanding the socialisation of emotions as fathers' parenting goals may differ to those of mothers. Societies valuing masculine traits may be more task-focussed and focus less on emotions, whereas societies who value traits perceived as more feminine, are geared towards interconnectivity. Although this dimension is more difficult to apply as the majority of studies in this review focussed on mothers' parenting styles, a notable difference was found in one study which included both parents. Bowie et al. (2011) found that Black American mothers' greater use of emotion coaching about anger was associated with less internalising symptoms in Black American children in comparison to fathers. Mothers in this study also had greater influence on their children's emotion regulation. The role of fathers in emotion socialisation and parenting is worthy of further investigation, and as noted earlier is a limitation in many of the studies reviewed.

For the purposes of this literature review, Hofstede's (1980,1983, 1991) cultural dimensions model was applied to the results to determine how cultural affiliation and associated values may influence parenting styles and child outcomes. Although the model provided a coherent conceptual framework, and has contributed greatly to our understanding of culture, there were limitations to the applicability. Of note the cultural dimension model is not specifically a parenting model and was based on data from staff working in large corporations internationally. Therefore, the model does not account for within-group differences and it is based on homogenous groups in relation to economic status. Thus other factors, which may affect parenting styles such as poverty and parental stress, are not accounted for. For example collective experiences of discrimination and poverty in relation to ethnic and cultural group affiliation may shape parenting values and styles. Supplee et al. (2009) found that

comfort seeking in Black American toddlers from a lower economic status was associated with poorer adjustment outcomes. The authors suggested that this may have been related to parental expectations of self-reliance and self-sufficiency in Black American children. There are expectations that African American children take on responsibilities from an early age to cope with discrimination and racism; an authoritarian parenting style has therefore been found to be a protective factor for these communities (Jambunathan et al., 2000).

The cultural dimensions model proposed by Hofstede (1980,1983,1990) also presents culture as somewhat static and does not account for cultural shifts or the influence of sub-cultural groups. As the studies in the review included immigrant groups, the impact of the acculturation is important to address. For example, although the benefits of authoritative parenting are reported to have not been observed in Chinese families (Chao & Tseng, 2002), Cheah et al. (2009) found Chinese immigrant mothers highly endorsed authoritative parenting. This parenting style was associated with positive outcomes for their children. Chinese immigrant mothers who endorsed this parenting style were also found to have greater psychological adjustment. Greater integration with both host and native cultures, has been associated with less acculturative stress and better psychological adjustment for immigrants (Berry, 1997). It may be that these Chinese mothers were also more integrated and adapted some European American values. Similarly, Chinese American mothers, who had higher affiliation with American culture, were found to display greater emotional expression (Chen et al., 2015). Perhaps the model of autonomous relatedness (Kagitçibasi, 1996a, 2005) may be a better fit for immigrant groups from collectivist cultures, who have retained their cultural values as well as adapting values of their host culture. Parenting style and emotion socialisation goals may therefore emphasise both integration into the family and personal autonomy.

**Future research**

As this review has highlighted, assessing modes of acculturation is important in future research, particularly when including minority ethnic cultural groups. As culture is fluid it is important to determine the effects of adapting to a new culture and the effects this may have on parenting. Considering whether parents retain traditional cultural belief norms, or adapt to those of the host culture is therefore essential. The effects of migration push and pull factors, whether they are due to financial gain or crisis situations, are also significant. Thus effects of mediators, such as poverty and parental stress, on children's self-regulation via parenting styles requires more attention in relation to cultural differences. Poverty has been found to confound culture and ethnicity (Li-Grinning, 2012) and thus controlling for poverty would be important. Poverty and familial stress also warrants further investigation, as children from lower income families, have been found to display lower emotion regulation than children from higher income families (Evans & Rosenbaum, 2008). The examination of the role of fathers is also warranted as most of the studies focussed on maternal parenting.

Longitudinal studies which allow for direct comparisons across cultural groups may be beneficial in furthering our understanding of parenting styles and child outcomes within the cultural context. Longitudinal studies could be helpful in exploring the direction of causality in the relationship between parenting and emotion regulation as a reciprocal process. Utilising a more global measure which assesses different domains of parenting across diverse cultures would be a valuable contribution. The use of well validated measures of emotion regulation would also ensure that the construct is being measured consistently across cultural groups. Validated parent observation measures of children's emotion

regulation, may also be important as younger children may find it difficult to describe internal states. It would also be important to assess children's views on parenting styles in relation to how these are perceived on both an emotional and cognitive level.

**Limitations of review**

The current review is limited as it only included studies that were published in English, and thus there may have been a bias in the study selection. Given the context of this review examining the role of culture, this could be a significant limitation. The very small number of studies is a reflection of the state of the field, but has limited the possible conclusions that can be drawn. It is hoped that this review may stimulate further interest in this area. An attempt to locate the findings in a wider understanding of collectivist and individualist societies was made, referring to Hofstede's (1980, 1983, 1990) cultural dimensions model. The limitations of using this model are also acknowledged.

## Implications for Clinical Practice

This review has highlighted cultural differences in relation to emotion socialisation, parenting and emotion regulation outcomes of children. This has theoretical and practical implications, particularly in larger cities where diverse ethnic groups reside. This is particularly salient in regards to how services may interpret stricter, more controlling and authoritarian styles of parenting. There is a need to assess and understand family interactions within cultural systems in order to formulate culturally appropriate care plans for families. This may include consideration of parenting style or emotional socialisation which may be adaptive in a specific culture but viewed as less adaptive in clinical practice. A process of cultural reciprocity, considering one's cultural values as a clinician while accommodating the diverse cultural values of the family, would be vital. As cultural beliefs may affect access to mental health services, working with families to determine their beliefs systems about emotion expression and parenting style is important. Clinicians will then be able to determine the family processes which are most beneficial within particular cultural groups, in order to plan culturally appropriate family interventions without imposing one's own cultural values. There is a danger that should parenting practices be misunderstood, families from ethnic minority groups may not access services. There is also a danger that these families may subsequently be labelled and criticised.

## Conclusion

Although this review included a small number of studies, it highlights the importance of the impact of culture on parenting style, emotion socialisation and emotion regulation. This may improve our understanding about culturally appropriate approaches for children and families from diverse cultural groups.

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Appendix A

Checklist for assessing the quality of quantitative studies

| Criteria | | Yes (2) | Partial (1) | No (0) | N/A |
|---|---|---|---|---|---|
| 1 | Question / objective sufficiently described? | | | | |
| 2 | Study design evident and appropriate? | | | | |
| 3 | Method of subject/comparison group selection or source of information/input variables described and appropriate | | | | |
| 4 | Subject (and comparison group, if applicable) characteristics sufficiently described? | | | | |
| 5 | If interventional and random allocation was possible, was it described? | | | | |
| 6 | If interventional and blinding of investigators was possible, was it reported? | | | | |
| 7 | If interventional and blinding of subjects was possible, was it reported? | | | | |
| 8. | Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassifi cation bias? Means of | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | assessment reported? | | | | |
| 9 | Sample size appropriate? appropriate? | | | | |
| 10 | Analytic methods described/justified and | | | | |
| 11 | Some estimate of variance is reported for the main results? | | | | |
| 12 | Controlled for confounding? | | | | |
| 13 | Results reported in sufficient detail? | | | | |
| 14 | Conclusions supported by the results? | | | | |

**Rating of papers using QualSyst**

| Papers | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bowie | 2 | 2 | 1 | 1 | na | na | na | 2 | 1 | 2 | 2 | 1 | 2 | 2 |
| Chen | 1 | 2 | 1 | 1 | na | na | na | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cheah | 2 | 2 | 1 | 1 | na | na | na | 2 | 1 | 2 | 1 | 2 | 2 | 2 |
| Louie | 2 | 2 | 1 | 1 | na | na | na | 2 | 1 | 2 | 2 | 2 | 2 | 2 |
| Lugo-Candelas | 1 | 2 | 1 | 1 | na | na | na | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Supplee | 1 | 1 | 1 | 1 | na | na | na | 2 | 1 | 2 | 2 | 1 | 2 | 2 |
| Rudy | 1 | 2 | 1 | 1 | na | na | na | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Appendix B

| Measure | Description |
|---|---|
| Anxiety and depression scales of the The Behaviour Assessment System for Children (BASC-C, Reynolds & Kamphaus, 1998) | Child self-report measures. Consists of 152 items |
| Children's Positive and Negative Affect Scales for Children (PANAS-C; Laurent et al., 1999) | 30 question child self-report measuring positive and negative emotion |
| Child Problem Behaviour Checklist (Lochman and Conduct Problems Research Group (1995) | 23 items rating problem behaviours |
| Child Rearing Practices Report (CRPR, Block, 1981), | Parent rating of parenting practice |
| Childrens Sadness Management Scales (SSMS, Zeman et al, 2001) | Measures inhibition, dysregulated expression and emotional regulation coping |
| Coping with Children's Negative Emotion Questionnaire (CCNES, Fabes et al., 1990) | Assesses supportive and non-supportive parenting behaviours |
| Cultural and Social Acculturation Scale (CSAS, Chen & Lee, 1996). | Parents reported on their own Chinese and American cultural orientation 12 items assessing language, media use and cultural affiliation |
| The Parenting Meta-Emotion interview (PMEI, Hooven et al., 1995), | Assesses regulation and coaching about sadness, anger and pride. 11 statements |
| Parental Acceptance Rejection Questionnaire (PARQ, Rohner, 1986) | 11 items measuring harsh parenting |
| Parent Attitude Toward Child Expressiveness Scale (PACES; Saarni, 1985) | Presents 25 vignettes in which a child experiences or displays a negative or positive emotion in a range of settings. |

| | |
|---|---|
| PSDQ. A modified version of the Parenting Styles Dimensions Questionnaire (PSDQ; Robinson, Mandleco, Olsen, & Hart, 2001; Wu et al., 2002) | This 41-item measure assesses the mothers' perspective on their parenting role, endorsement of the authoritative and authoritarian parenting styles |
| RWBS. The Psychological Well-Being Scale (RWBS; Ryff, 1995) | Assesses multiple dimensions of parent's psychological well-being: autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance. |
| Revised Class Play (RCP, Masten, Morison, & Pellegrini, 1985) | 13 items which assess social competence |
| Rothbart Child Behaviour Questionnaire (CBQ, Rothbart et al., 1994) | Observable behaviours reflecting temperament, 7 items for attentional control |
| Self -Expressiveness in the Family Questionnaire (SEFQ, Halberstadt et al., 1995) | 34 items measuring emotional expression in the family |
| Social Competence Behaviour Edition (SCBE, LaFreniere & Dumas, 1996), | 80 items assessing social competence. |
| The Strengths and Difficulties Questionnaire–Mother and Teacher versions (SDQ–M; Goodman, 1997) | 25 items assessing hyperactivity, conduct problems, peers problems, pro-social behaviour and emotional problems. |
| Teacher-Child Rating Scale (T-CRS, Hightower et al., 1986) | Assesses behaviour and learning problems |

# Part Two: Empirical chapter

## The Development of a Parent Observation Measure of Mindfulness in Children (POMM-C)

## Abstract

### Objective

Mindfulness based interventions demonstrate promising results in improving emotion regulation, behaviour, executive functioning and attention in children. However, few mindfulness measures exist for children and currently there are no parent observation measures of mindfulness in children under the age of nine years. In light of this, the aim of the current study was to develop and validate a parent observation measure of mindfulness traits, in children aged 6 to 9 years old.

### Method

In phase one, procedures for developing the questionnaire items were followed and expert feedback was provided for an initial pool of 89 items. Following feedback, the 26 item Parent Observation Measure of Mindfulness in Children (POMM-C) was completed by parents ($n$ = 202) at time one. At time two parents ($n$ = 100) completed the POMM-C two weeks later. The factor structure and further item reduction was determined through exploratory factor analysis. Internal consistency and test-retest reliability was also determined. In phase two, construct validity of the POMM-C was determined, by asking parents ($n$ = 25) to complete the 16 item POMM-C as well as validated parent observation measures.

### Results

Correlational analyses confirmed internal consistency, Cronbach's α= .870. Exploratory factor analysis revealed a two factor structure of mindfulness, Acting with awareness and Observing, explaining 39.5 % of the variance. The final measure, the Parent Observation Measure of Mindfulness in children (POMM-C), consisted of 16 items. Internal consistency for both sub-scales of the

16 item POMM-C was also good, for Acting with awareness Cronbach $\alpha = .850$ and for Observing Cronbach $\alpha = .713$. Strong correlations were found with inattention and hyperactivity, suggesting that mindfulness as measured by the POMM-C is closely related to these variables.

**Conclusion**

The POMM-C has the potential to further research about the conceptualisation of mindfulness in children and how mindfulness changes as children develop through childhood. More specifically, it is important to further disentangle the close relationship between hyperactivity and mindfulness. It is anticipated that the development of this measure may also further our understanding of the multifaceted nature of mindfulness in children. The development of the POMM-C will hopefully stimulate further research into mindfulness interventions with children, which has largely relied on generic measures which have not specifically assessed mindfulness. Further to this the POMM-C addresses the need for an observation measure of mindfulness in children.

**Practitioner points:**

- The POMM-C may be used to clinically assess outcomes post mindfulness based interventions for children
- The POMM-C has the potential for furthering our understanding of how mindfulness develops in children. The POMM-C has the potential to be used with younger children, but the measure requires validation in this age group.

## Introduction

Mindfulness originates from Buddhist meditative practice and has been defined as "an awareness that emerges through paying attention on purpose, in the present moment, and non-judgementally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 144). Mindfulness helps to improve emotional well-being by increasing awareness of how automatic thoughts, emotions and sensations can lead to emotional distress. One is encouraged to gently pay attention to and accept thoughts, sensations, feelings, and environment with openness and curiosity (Hoffman et al., 2010). Although traditionally an Eastern spiritual practice, mindfulness has gained popularity in both clinical and secular practice. Clinical interventions have focussed on the awareness and attention aspects of mindfulness, such as Mindfulness-based Stress Reduction (MBSR; Kabat-Zinn, 1982; 1990) and Mindfulness-based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002). While other approaches have focussed on acceptance and detachment such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and kindness and compassion for example Compassion Focussed Therapy (CFT; Gilbert, 2009). A substantial empirical base has emerged regarding the effectiveness of mindfulness based approaches with a variety of clinical disorders (Baer et al., 2003; Grossman, Niemann, Schmidt, & Walach, 2004). Mindfulness approaches have been used with anxiety based disorders (Kabat-Zinn, 1990), psychosis (Bach & Hayes, 2002), relapse prevention of major depression (Segal, Williams, & Teasdale, 2002), and eating disorders (Fairburn, Cooper, & Shafran, 2003), to name a few.

**Mindfulness approaches with children**

Mindfulness approaches have also been adapted for children and adolescents, such as DBT for adolescents with bipolar disorder (Goldstein et al., 2007), MBCT for children with anxiety difficulties (Semple, Reid, & Miller, 2005) and ACT for childhood anxiety (Greco et al., 2005). A review conducted by Burke (2009) found that mindfulness based interventions reduce anxiety, attention and behavioural problems in children in a clinical population. Evidence from developmental neuroscience suggests that mindfulness can be effective in the development of self -regulation of emotion, thought and action in children (Zelazo & Lyons, 2012). These researchers suggest that mindfulness training may help children develop top-down controlled regulatory processes such as cognitive flexibility and inhibitory control.

Regulatory cognitive processes may lessen the influences of bottom-up processes such as anxiety and stress which affect children's ability to control their behaviour. In one study of 8-11 years old with ADHD, mindfulness training was found to reduce symptoms of inattention and hyperactivity-impulsive behaviours (van der Oord, Bogels, & Peijnenburg, 2012). Mindfulness training is also showing promising results in community samples as an increasing number of studies have examined its effectiveness in schools (Kuyken et al., 2013). A recent meta-analysis of mindfulness-based interventions in schools found that mindfulness training increased cognitive performance and resilience to stress (Zenner, Hernleben-Kurz, & Walach, 2014). Some of the studies included demonstrated an increase in selective attention, a decrease in test anxiety (Napoli et al., 2005) and a decrease in behavioural problems (Flook et al., 2010). Similarly Mendelson et al., (2010) reported positive results such as reduction in rumination,

intrusive thoughts and stress based emotional responses. Only a study (Biegel & Brown, 2010) included in the meta-analysis, sampled children as young as six. Although little is known about the effectiveness of mindfulness in younger children, there are some promising indications. Recent research conducted by Flook and colleagues (2015), found mindfulness based kindness training increased social competence, social emotional development and compassion in pre-school children as reported by teachers. Thus mindfulness with younger children is worthy of further research given that self-regulation is strongly predictive of school readiness (Blair & Razza, 2007), focus and attention in the classroom (Napoli et al., 2005). The regulation of emotion has been an area of considerable interest in child development (See Eisenberg, 2001; Field,1994) and measuring how mindfulness may facilitate improvement in self-regulated behaviour is warranted (Zelazo & Lyons, 2012). Therefore, careful consideration of the conceptualisation of mindfulness is important to ensure the construct is accurately being measured.

**How is mindfulness conceptualised and measured?**

In order to assess the effectiveness of mindfulness based interventions, sound psychometric measures of mindfulness are essential. A number of mindfulness measures for adults already exist, however it is important to first consider how mindfulness is conceptualised. A number of methodological weaknesses have been highlighted in mindfulness research (See Baer et al., 2003), particularly in the conceptualisation of mindfulness. It is unclear whether mindfulness is a distinct construct or process (Chambers, Gullone, & Allen, 2009). Mindfulness has been suggested to have two main components; self-regulation to attention and orientation to openness and

acceptance (Bishop et al., 2004). Mindfulness has also been described as multifaceted, with components of Consideration of mindfulness as a single or multifaceted construct has been important in the development of mindfulness measures. Currently, eight self-report mindfulness questionnaires exist for adults (See Table 1 for a more detailed description). Of these measures, only one, the Mindful Attention Scale (MAAS, Brown & Ryan, 2003), operationalises mindfulness as a single factor encompassing attention and awareness. The authors suggest acceptance is a part of this process. However the Kentucky Inventory of Mindfulness Scale (KIMS, Baer et al., 2004) and the Five Facet Mindfulness Scale (FFMQ, Baer et al., 2006) measure mindfulness as a multi- faceted construct. The FFMQ was an attempt to integrate the conceptualisation of mindfulness across five validated measures (Baer et al., 2006). A significant correlation across the five questionnaires was found and the authors suggest that conceptualising mindfulness as a multi-faceted construct will help understand its relationships with other variables. The multifaceted construct encompasses non-reactivity, describing, non-judgement, observing and acting with awareness.

Another important distinction is that the majority of measures available assess trait mindfulness, with the exception of Toronto Mindfulness Scale (TMS; Lau et al, 2006) and the State Mindfulness Scale (SMS; Tanay & Berstein, 2013) which measure state mindfulness. Although state and trait mindfulness are closely related they may be considered different constructs (Thompson & Waltz, 2007). Trait mindfulness is more stable over time and may be related to personality traits, while state mindfulness is related to a current meditative experience. In the literature there is consensus that trait mindfulness reflects greater ability to remain in mindful states over time (Brown et al, 2007).

As, the current mindfulness scales demonstrate variation in content, structure and lack of agreement on the meaning of the construct (Brown et al, 2007), the challenge in measuring mindfulness is considerable. The non-judgment, present awareness, acceptance, attention and intention attributes as conceptualised by Dimidjian & Linehan, 2003), are distinct but overlapping (Bergomi et al., 2013). Although there is no definite answer to the issue of conceptual coverage of mindfulness, conceptualisation of mindfulness across current measures demonstrate many similarities (Bergomi et al., 2013). There however, appears to be greater consensus around conceptualising mindfulness as a multifaceted construct. A review of the current mindfulness measures by Bergomi et al (2013) suggests that operationalising and conceptualising mindfulness in this more comprehensive way is preferable.

**Measures used with children**

A recent meta-analysis of mindfulness based interventions in schools highlighted a variety of self-report and observational child measures used to assess psychological outcomes (Zenner, Hernleben-Kurz, & Walach, 2014). The questionnaires included in the studies measured outcomes related to mindfulness, such as cognitive performance, emotional regulation, stress and coping but did not utilise a direct measure of mindfulness in children. In fact, in comparison to the plethora of measures available to assess mindfulness in adults, there are relatively few mindfulness measures available for children. Self-report measures available to assess mindfulness in children have been validated with older children, aged nine years plus, such as the Avoidance and Fusion Questionnaire for Youth (AFQ-Y, Greco, Lambert, & Baer, 2008) and the Child and Adolescent Mindfulness Measure (CAMM, Greco & Baer, 2011). The AFQ-Y (Greco, Lambert, & Baer,

2008) assesses cognitive fusion and experiential avoidance, the two core processes of Acceptance and Commitment Therapy (ACT) which are also related to mindfulness. However, it fails to measure present-centred awareness and non-judgemental approach to internal experiences which are key elements of mindfulness. This self- report measure consists of 17 items. The CAMM, (Greco, Baer &Smith, 2011) is a 10 item self -report measure assessing present moment awareness, acceptance and non-judgment of experience. The CAMM was developed to address this gap and preliminary evidence demonstrates it as a reliable and valid tool. However, it is questionable whether it reliably captures all facets of mindfulness assessed in the majority of adult measures as it is a single-factor instrument. As it is a self-report measure validated in children and adolescents aged 10 to 17 years old, observing and describing items were removed due to development inappropriateness. The describing items related to internal experience and the authors discuss the ability to label emotions may differ across the age range (10-17 years). The Mindful Attention Awareness Scale (MAAS) was recently validated with children of an average age of 11 years (Lawlor et al., 2013). The adapted version, the MAAS-C consists of 15 items and was also a single factor instrument. These measures have been validated for use with children over the age of nine years, and as such there is not currently a measure of mindfulness in young children. The question of how mindfulness develops in younger children, has not been fully addressed or captured by these instruments and remains unanswered. Therefore there is a need to develop a measure to capture mindfulness in children age nine and under. However a number of challenges in using self-report measures in children arise.

Self-report measures for young children may be problematic primarily

because of developmental issues. Although prepubescent children have been found to reliably report internal feelings (Loeber, Green, & Lahey, 1990), difficulties in consistent reporting for younger school age children, under age 9, may arise. Indeed it is thought that children's understanding of emotions may be a function of their cognitive development, hence understanding of emotion may be age related (Harter, 1982; 1986). Difference in reading level and understanding of more complex concepts may also be problematic. This may be particularly salient with regards to the conceptualisation of mindfulness and younger children's ability to understand the concept. In fact, problems in understanding the concept of mindfulness have been identified with non-meditative adult populations (Bergomi et al., 2013). Reliance on self-report may also be biased in regards to over reporting or under reporting (Lawlor et al, 2013). The lack of observation tools to measure overt behaviours of mindfulness, such as a relaxed state, has also been raised as a shortcoming in mindfulness research (Hites & Lundervold, 2013). Consequently it has also been important to assess observations of children to understand emotional regulation and children's behaviour.

A vast number of observation measures of children have been developed and validated measuring various observable aspects of behaviour, which have been pivotal in research into child psychological well-being. For example the validation of Child Behaviour Questionnaire (CBQ; Rothbart et al., 1994), which assesses extraversion, negative affect and self-regulation in children aged three to seven years old, demonstrated high parental agreement. In their validation study,

parents' reports on inhibitory control and impulsivity were found to be more reliable as these behaviours were easily observed. Consistency of parental rating of behaviours of children aged five to seven was also found. It may be argued that parents are ideally placed to comment on the behaviour of their children, from which mindfulness traits may be inferred.

Given that only three measures of mindfulness exist which rely on self-report in children aged over ten years, a substantial gap is present. In light of the growing evidence for mindfulness school based interventions aimed at children, a tool which can reliably measure mindfulness in school aged children age is required. As Zenner et al. (2014) highlighted in their review, the youngest age group included in an intervention was age six. A measure assessing mindfulness in children may stimulate future inclusion of children aged six to nine in mindfulness based interventions. Such a measure may provide greater understanding of the relationship between mindfulness and the underlying causal pathways of self-regulation on a development continuum (Zelazo & Lyons, 2012). Implications for clinical practice include the routine assessment of outcomes related to mindfulness based interventions in Child and Mental Health Services (CAMHS) with a variety of clinical disorders. A parent observation measure may further add to our understanding the nature of mindfulness in children. More importantly, clearly defining how this may be observed in children, and measured in children, is crucial in aiding our understanding of this complex construct.

**Aims**

The aim of the current study was to design and validate the Parent Observation Measure of Mindfulness in Children (POMM-C) between the ages of 6 and 9 years. A second aim was to ensure that the proposed measure is a reliable

tool to assess mindfulness traits in children. Therefore the POMM-C was correlated with a number of validated parent observation tools which assess psychological processes found to be associated with mindfulness (behaviour, attention, hyperactivity and executive functioning).

It was hypothesised that the measure would capture mindfulness as conceptualised in the literature and would be a valid parent observation of mindfulness in children. It was hypothesised that the measure would positively correlate with pro-social behaviours. It was also hypothesised that items in the measure would correlate negatively with less favourable outcomes such as emotion dysregulation, inattention, hyperactivity and maladjusted behaviour.

## Method

### Ethical considerations

Ethical approval was granted by the University of Sheffield Ethics Committee (see Appendix C). The principles of ethics relating to prevention of harm, informed consent, issues of confidentiality, trust, reciprocity and privacy are paramount. The researcher has a responsibility to participants to ensure these requirements are met, which was adhered to. NHS ethical approval was not required as the study did not involve patients or involve access to NHS clinical settings.

### Design

The study consisted of two phases. In phase one the POMM-C was developed through a process of item generation, expert consultation and refinement. Data was subsequently collected using the measure at time one (T1) and collected two weeks later at time two (T2), to determine test-retest reliability. Data was analysed using factor analysis to determine the factor structure and to

inform item reduction. In phase two, construct validity was ascertained. Data for this phase was collected using the revised POMM-C, The Strength and Difficulties Questionnaire (SDQ; Goodman & Scott, 1997), The SNAP-IV (Swanson et al.,2001), and the Behaviour Rating Inventory of Executive Functioning (BRIEF-2, Gioia, Isquith, Guy, & Kenworthy, 2000).

**Phase one: Questionnaire development**

Based on an extensive review of existing measures of mindfulness, a definition of the concept for the development of the current measure was agreed amongst the research team. An initial pool of 89 items was subsequently generated to ensure representation of the many facets of mindfulness. Bergomi et al. (2013) found nine categories relating to the conceptualisation of mindfulness after reviewing the existing adult measures. Similar steps were undertaken in order to identify the multifaceted nature of mindfulness, and also included the measures available for children. This process was reiterative; items were cross referenced against the extant literature and coded as relating to the identified facets of mindfulness. This was carried out alongside careful consideration of observable behaviours in children. See table1for a description of the measures.

Table 1
*Existing Mindfulness Measures: Adult and Child*

| Measures | Description |
|---|---|
| The Freiburg Mindfulness Inventory (FMI, The Freiburg Mindfulness (FMI, Walach et al., 2006) | Originally contained 30 items. It was found to have a four-factor structure; mindful presence, non-judgmental acceptance, openness to experiences, and insight. Further statistical analyses of the FMI yielded a one-dimensional 14-item version (Walach et al., 2006). |
| The Cognitive and Affective Mindfulness Scale-Revised (Hayes & Feldman, 2004; CAMS-R; Feldman et al., 2007;) | Is a 12-item scale of mindfulness. The CAMS-R measures attention, p Is a 17 item questionnaire measuring cognitive fusion and experiential avoidance, recent-focus, awareness, and acceptance/non-judgment of thoughts and feelings. |
| The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2005) | Is a 39 item measure developed through a factor study of five mindfulness measures. Five factors found were: non reactivity to inner experience, describe/labelling with words, non-judging of experience, observing and acting with awareness. |
| The Southampton Mindfulness Questionnaire (SMQ; Chadwick et al. 2008) | Is a 16 item scale measuring four bipolar aspects of mindfulness. The SMQ examines decentred awareness verses being lost in reacting to cognitions; allowing attention to stay in contact with difficult cognitions verses being judgemental; acceptance of difficult thoughts and feelings verses being judgemental; and letting go of and being non-reactive to difficult cognitions verses rumination/worry |

| Measures | Description |
|---|---|
| The Kentucky Inventory of Mindfulness Scale (KIMS; Baer et al. 2004 | Is a 39 scale which measures four aspects of mindfulness which are observing, describing, acting with awareness, and accepting without judgement. |
| The Mindful Attention Aware-ness Scale (MAAS; Brown & Ryan, 2003) | Is a 15-item scale measuring mindfulness as a single factor relating to attention and awareness. |
| Toronto Mindfulness Scale (TMS; Lau et al. 2006) | The SMS is 25 item questionnaire relating to mindfulness of bodily sensations, and state mindfulness of mental events. |
| State Mindfulness Scale (SMS, Tanay & Berstein, 2013) | The SMS is 25 item questionnaire relating to mindfulness of bodily sensations, and state mindfulness of mental events. |
| The Child and Adolescent Mindfulness Measure (CAMS, Greco, Baer & Smith, 2011) | It was originally developed from three facets adapted from KIMS. These facets were observing, acting with awareness and accepting without judgement. The describing items were not included due to development inappropriateness. There was an initial pool of 25 items, however the observing items were later eliminated, reducing the measure to 10 items. |
| The Avoidance and Fusion Questionnaire (AFQ, Greco, Lambert, & Baer, 2008 | Is a 17 item questionnaire measuring cognitive fusion and experiential avoidance. |
| The Mindful Attention Awareness Scale was validated in children (MAAS-C; Lawlor et al 2013) | The original MAAS was validated in children of an average age of 11and 15 items modified. |

The following facets of mindfulness were identified from the existing measures. This conceptualisation guided the generation of representative items for the POMM-C.

1) Non reactivity /letting go: Not responding to uncomfortable internal experiences
2) Describe / labelling: Assigning attributes (labels) without judgment
3) Acceptance/ Non judgement of self and experience: Complete acceptance without criticism
4) Observing: Noticing internal and external experiences or sensations
5) Attending/awareness: Being alert to the present moment through the five senses
6) Non-avoidance: tolerance for difficult thought / cognitions, allowing attention to stay in contact with difficult internal experiences and acknowledgment of them
7) Curiosity/ openness / readiness/willingness for new experiences: Seeing the world with beginner's mind and fresh eyes with interest in discovering
8) Insightful understanding: Deeper awareness and insights about internal and external experiences
9) Decentring: Not over identifying with internal experiences

Following the generation of the initial item pool, item reduction was carried out via consultation with a panel of practitioner psychologists with expert knowledge about mindfulness and children. Items were rated by three panel

members utilising a feedback pro-forma (see Appendix D). Each item was rated according to the extent to which it related to mindfulness on a scale of 1 (not at all related) to 5 (Very related). A fourth panel member provided qualitative feedback only. In addition, all four panel members provided qualitative feedback on the clarity and developmental appropriateness of the items, and indicated the possible omission of any item. Items were retained where a minimum of two panel members scored the item as 3 or above on the 5-point likert scale of relatedness. As such 63 items were excluded. Following expert consultation, a list of 26 items was produced (see appendix E). The 26 item POMM-C was piloted face to face with a small group of parents of children aged 6-9 years old ($n$ = 6). This process was undertaken to evaluate usability of the POMM-C. These parents were asked to provide feedback regarding their understanding of the items and language used, developmental appropriateness of items and to check for redundancy of items. Based on this feedback, four items were reworded to improve clarity and understanding.

Guidance on general questionnaire design and methodological issues (see Kline, 2000) was adhered to. One important consideration was to ensure a robust factor structure. In order to do this it has been suggested that 10 participants for every item is required (Floyd & Widaman, 1995). Studies reporting validation of mindfulness measures (FFMQ; Baer et al., 2006; CAMM; Greco et al, 2011) were also referred to ensure that the process was replicated. A likert scale indicating a respondent's level of agreement with the items was devised. This ranged from 1 "never true", 2 "rarely true", 3"sometimes true", 4 "often true" and 5 "always true". A likert scale was chosen because it has been suggested that multiple choice has been found to be more reliable and

stable (Comrey, 1988). Consideration was given to directly worded items as research has shown reverse-scored items may not measure the same construct (Reise & Waller, 2009). However, reverse-scored items were included in order to describe overt behaviours which may be easily observed by parents. For example, child seems to be on 'autopilot' without awareness of what he/she is doing. Validated mindfulness measures such as the CAMM (Greco et al., 2011) and MAAS-C (Lawlor et al., 2013) also use reverse scored items. Field (2014) also suggests that reverse items may reduce response bias. Finally, readability statistics were generated using Flesch-Kincaid (Kincaid, Fishburne, Rogers, & Chissom, 1975) to ensure items were clearly understood and had the readability age of 18.

**Recruitment**

Parents of children aged 6-9 years old were recruited through a variety of methods which included an online parenting forum, facebook groups, twitter, directly approaching schools, and local parents groups. A snowballing approach (Goodman, 1961), which primarily builds on social networks of respondents, was also used to maximise recruitment. The aim was to recruit 260 parents. Parents initially viewed a brief advertisement promoting the study and then accessed a link to the measure on Qualtrics. Further information about the study was provided on the first webpage (Appendix F); participants were asked to give consent (Appendix G), to provide basic demographic information about their child and to complete the 26 item POMM-C at time 1 (T1). The participants were invited again two weeks later to complete the measure at time 2 (T2). A total of 202 parents responded and completed the measure at T1.

## Participants

Inclusion criteria for the study, was parents of children between the ages of 6 and 9 years, who spoke English as a first language. Parents ($n$ = 202) were instructed to complete the measure in regards to one of their children. The age range of children was 6-9 years (mean age= 7.89) and 60 % ($n$ = 121) were male. The ethnicity of the sample of children was: 91% ($n$ = 184) White British, 3% ($n$ = 6) Black and White British Caribbean, 1.5% ($n$ = 3), 1.5% ($n$ = 3) British Asian, 1% ($n$ = 2) Indian and White British, 0.5% ($n$ = 1) Indian, 1% ($n$ = 2) Black, 0.5% ($n$ = 1) Arab Irish, 0.5% ($n$ = 1) Other and 0.5% ($n$ = 1) Undefined.

Two weeks after T1, the participants were invited again by email to complete the mindfulness measure for test-retest reliability purposes. A subset of the original sample ($n$ = 100) responded to the request and completed the measure at T2. This sub-set of participants had similar characteristics to the sample in T1 as the sample was predominantly White British (90%, $n$ = 90) and over half were male (57%, $n$ = 57). The mean age of the children was 7.12years.

## Analysis

**Exploratory factor analysis.** Using the sample ($n$ = 202) responses to the combined pool of 26 items, an exploratory factor analysis (EFA) using principal component factoring with oblique rotation was executed to allow for inter-correlations among the factors. Correlations above .3 suggest the questionnaire items are related and measuring the same underlying construct (Field, 2014). Cronbach's alpha will generally increase as the inter-correlations among test items increase, and inter-correlations among test items are maximized when all items measure the same construct (Cortina, 1993). Although Kaiser's criterion states

retaining all factors with eigenvalues above 1 (Kaiser, 1960), the factors retained were derived from the scree plot. The decision to use the scree plot was justified by two principals. Firstly, Floyd and Widamon (1995) have argued that the scree plot is a more useful guide to the number of factors to retain, as using eigenvalues greater than 1.0 can lead to overestimation of the number of meaningful factors. Secondly, Kaiser's criterion was not appropriate for the data. Although Kaiser's criteria is appropriate when variables are less than 30, the rule is appropriate when communalities are above .7, or the sample size is above 250 (Field, 2014). The last two conditions were not met. A second factor analysis was conducted, specifying that two factors should be identified, again using principal axis factoring with oblique rotation. Internal consistency was assessed through reliability analysis on the retained items after the factor analysis was conducted. All items with a combined Cronbach's Alpha > 0.7 were retained. The reverse scored items were positively reversed prior to the analysis as reverse items may affect the calculation of Cronbach's alpha (Field, 2014). A second reliability analysis was conducted after a further item had been excluded. Test retest reliability was determined by scoring the mindfulness measure administered at T2, and applying the same scoring system as devised at T1. A Spearman correlation analysis was performed to compare responses at T1 and T2 to assess test-retest reliability of the POMM-C. A paired sample t-test was also used to compare mean scores at T1 and T2.

## Results

**Factor analysis.** The Kaiser-Meyer-Olkin measure verified the adequacy of the sample for analysis, KMO = .875. Results of the initial EFA yielded 6 factors with eigenvalues greater than 1.0 and accounting for 59.9% of the total variance. However, the scree plot clearly demonstrated inflexions that would

suggest a two factor solution. The decision to use the scree plot was justified as the dataset did not meet Kaiser's criterion as values in the communalities were not above .7 and the sample size was below 250 (see Appendix H for communalities table). This analysis yielded a two-factor solution accounting for 39.5% of the variance after factor extraction. The items clustering on factor 1 were labelled as 'Acting with awareness' and items clustering on factor 2 were labelled 'Observing', consistent with the categorisation of the original 89 items. For factor loadings see table 2.

Table 2

*Factor Loadings for a Two-Factor POMM-C (n=202)*

| Items | Acting with awareness | Observing |
|---|---|---|
| 12. Child appears to be agitated | **-.774** | .144 |
| 7. Child quickly loses his or her temper when things do not go his or her way | **-.699** | .183 |
| 11. Child appears to be fidgety | **-.690** | .227 |
| 13. Child can avoid distractions | **.679** | -.082 |
| 14. Child appears to be on | **-.645** | -.058 |
| 16. Child breaks or spills things because of inattention or being distracted | **-.637** | .122 |
| 15. Child is able to follow instructions and listen carefully | **.610** | .207 |
| 1. Child acts without thinking first | **-.610** | -.109 |
| 23.Child considers how his/her actions affect others | **.573** | .241 |
| 8. Child will take a moment to pause in an emotionally charged situation as opposed to reacting straight away | **.518** | .109 |
| 6. Child is able to show patience e.g. waiting for help at snack time or dinner time | **.516** | .107 |
| 9. Child appears to be preoccupied eg. worried | **-.462** | -.024 |
| 17. Child appears to daydream and seems lost in thought | **-.462** | - .072 |
| 18. Child appears to be alert and Attentive | **.428** | **.414** |
| 22. Child is aware of potential dangers in the physical | **.423** | .332 |
| 2. Child is caring and empathic towards others | .305 | .199 |

| Items | Acting with awareness | Observing |
|---|---|---|
| 21. Child notices visual qualities (e.g. colours, shapes, textures, patterns of light/shadow | -.114 | **.729** |
| 20. Child notices changes in the environment e.g. in the park | -.105 | .**723** |
| 26. Child points out things of interest | -.058 | **.699** |
| 3. Child is curious about his/her surroundings | -.212 | **.673** |
| 5. Child is aware of his/her emotions and can put into words how they feel | -.194 | **.588** |
| 4. Child is able to put into words how they are feeling physically | .206 | **.566** |
| 19. Child is aware of what is around him/her when playing outside | .302 | **.465** |
| 24. Child is curious about the feelings of others | .340 | .**423** |
| 25.Child attends to the answers given to questions they ask | .339 | **.**389 |
| 10. Child appears to be resilient e.g. can cope with/recover from disputes with others | .231 | .240 |

N.B Factors loading above .40 appear in bold.

Stevens (2002) suggest that for sample sizes of 200 a loading greater than .364, can be viewed as significant. Only items with minimum loadings of .40 on one factor were retained, with the exception of item 24, which had a communality of less than .4 (see Appendix H). Costello & Osbourne (2005) suggest items loading below .4 may not be related to the other items in the scale. Items 2, 10, and 25 were therefore discarded as they loaded below .40. As Comrey (1978) suggests factor analysis is an iterative process the definition and refinement of the construct is informed by the data. Item 7, 11, 26 and 20 were discarded as they

loaded closely across both factors on the component matrix (Table 3) suggesting these items may not add to the measure. Item 18 was also removed as it loaded closely across both factors on the pattern matrix.

Table 3

*Component matrix*

| | *Factors* | |
|---|---|---|
| | Acting with awareness | Observing |
| 20. Child notices changes in the environment eg. in the Park | .509 | .512 |
| 7. Child quickly loses his or her temper | -.507 | .419 |
| 11. Child appears to be fidgety | -.467 | .447 |
| 26. Child points out things of interest | .443 | .517 |

**Realibility statistics.** Reliability statistics on the 17 items revealed the POMM-C has good internal consistency, Cronbach's α = .867. Item 3 was removed after results from reliability statistics revealed that Cronbach's alpha would be slightly higher if item 3 was to be deleted , Cronbach's α = .870. Item 3 also had low correlations with other items, with a loading <.3.Therefore the item was discarded, the result being the 16 item POMM-C. Internal consistency for both sub-scales of the 16 item POMM-C was also good[1], for Acting with awareness Cronbach α = .850 and for Observing Cronbach α = .713. See table 4 for the 16 item POMM-C.

[1] George and Mallery (2003) provide rules of thumb for Cronbach alpha: >.9 (excellent), > .8 (Good), > .7 (Acceptable), > .6 (Questionable), > .5 (Poor) and < .5 (Unacceptable)

Table 4

*Final 16-item POMM-C*

| Items | Scale |
|---|---|
| 1. Child acts without thinking. | Acting with awareness |
| 2. Child is able to put into words how they are feeling physically. | Observing |
| 3. Child is aware of his/her emotions and can put into words how they feel. | Observing |
| 4. Child able to show patience e.g., waiting for help at snack/dinner time. | Acting with awareness |
| 5. Child is able to take a moment in an emotionally charged situation instead of reacting straight away. | Acting with awareness |
| 6. Child appears to be preoccupied e.g. worried. | Acting with awareness |
| 7. Child appears to be agitated. | Acting with awareness |
| 8. Child can avoid distractions when doing his/her tasks. | Acting with awareness |
| 9. Child seems to be on 'autopilot' without awareness of what he/she is doing. | Acting with awareness |
| 10. Child is able to follow instructions and listen carefully. | Acting with awareness |
| 11. Child breaks or spills things because of inattention or being distracted. | Acting with awareness |
| 12. Child appears to daydream. | Acting with awareness |
| 13. Child is aware of what is around him/her e.g. when playing outside. | Observing |
| 14. Child notices visual qualities (e.g. colours, shapes, textures, patterns of light/shadow | Observing |
| 15. Child is aware of potential dangers in the physical environment and shows age appropriate caution. | Acting with awareness |
| 16. Child considers how his/her actions affect others. | Acting with awareness |

**POMM-C normative scores.**Total scores on the POMM-C were computed by adding responses to 16 items, giving a possible score of 0-80. See table 5 for means and standard deviations for all participants ($n$ = 202). The Acting with awareness subscale was computed by adding responses to 12 items, yielding a possible score of 0-60, ($M$ = 41.02, $SD$ = 6.10) for total sample ($n$ = 202). The Observing subscale was calculated by adding the responses to 4 items yielding a possible score of 0-20, ($M$ = 16.04, $SD$ = 2.28) for total sample ($n$ = 202).

**Test-retest reliability.**Test-retest reliability on the 16 item POMM-C was good, $r_s$ = .785, $p$ = 0.01. Test-retest reliability on the Acting with awareness sub-scale was also good, $r_s$ = .806, $p$ = 0.01 and on the Observing sub-scale was good, $r_s$ = .717, $p$ = 0.01. On average, scores for participants ($n$ = 100) who completed at both time points, T1 ($M$ = 56.81, $SD$ = 7.13) and T2 ($M$ = 56.92, $SD$ = 7.08), were consistent over time (see Table 6). The difference between POMM-C scores at T1 and T2, was not significant $t$(99) = -.271, $p$ = .787. The Acting with awareness subscale scores for participants ($n$ = 100) who completed at both time points, T1 ($M$ = 54.00, $SD$ = 5.73) and T2 ($M$ = 55.00, $SD$ = 5.84), were consistent over time. The difference between Acting with awareness subscale scores at T1 and T2, was not significant $t$ (99) = -.541, $p$ = .590. The Observing subscale scores for participants ($n$ = 100) who completed at T1 ($M$ = 15.95, $SD$ = 2.29) and T2 ($M$ = 15.88, $SD$ = 2.04) were also consistent over time. The difference between Observing subscale scores at T1 and T2 was not significant, $t$ (99) = .423, $p$ = .673.

Table 5

*Means and standard deviations for the POMM-C by Gender and Age for Total Number of Participants (n =202)*

| Demographic variable | *n* | *M* | *SD* |
|---|---|---|---|
| Total sample | 202 | 57.07 | 7.60 |
| Age 6 | 73 | 54.86 | 7.89 |
| Age 7 | 56 | 57.51 | 7.48 |
| Age 8 | 45 | 58.13 | 6.81 |
| Age 9 | 28 | 60.25 | 6.97 |
| Boys | 121 | 55.95 | 7.94 |
| Girls | 81 | 58.75 | 6.77 |

Table 6

*Means and Standard Deviations for scores at T1 and T2 for the Participants who completed again at T2 (n = 100)*

| | T1 | | | T2 | |
|---|---|---|---|---|---|
| Demographic | *n* | *M* | *SD* | *M* | *SD* |
| Age 6 | 35 | 53.60 | 7.39 | 54.34 | 7.25 |
| Age 7 | 25 | 58.12 | 6.13 | 58.44 | 5.70 |
| Age 8 | 25 | 59.48 | 5.60 | 59.48 | 7.14 |
| Age 9 | 15 | 57.60 | 8.16 | 56.86 | 5.90 |

**Phase two: Construct validity**

Construct validity was assessed by testing predicted relationships between the POMM-C and selected measures of behavioural, emotional, executive

functioning and attentional problems in childhood. Based on the mindfulness literature, it was expected that the construct mindfulness would positively be associated with prosocial behaviour and negatively with inattention and maladjusted behavioural problems. As mindfulness is viewed as an adaptive skill, positive associations with adaptive outcomes and negative associations with maladaptive outcomes are expected (Greco et al., 2011).

**Measures**

The measures use in phase two are described below.

The Strengths and Difficulties Questionnaire (SDQ) is a brief behavioural screening questionnaire for emotional and behavioural disorders in children and adolescents aged 4-16 years (Goodman, 1999; Goodman & Scott, 1997). The SDQ (See Appendix I) has a 5 factor structure and consists of 25 items: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items) and prosocial behaviour (5 items). The SDQ has good concurrent validity (Goodman, 1997) and is a robust tool for determining emotional and behavioural difficulties in children. A recent study by Mieloo et al., (2012) investigated the validity with younger children, results demonstrated good internal consistency, Cronbach $\alpha > 0.70$. This measure was chosen as mindfulness skills have been related to a reduction in behavioural problems, a negative correlation with the proposed measure was predicted. However, a positive correlation was expected with the scale assessing prosocial behaviours.

The SNAP–IV (Swanson et al., 2001) consists of 18 items. The SNAP-IV (See Appendix J) assesses hyperactivity, impulsivity and inattention. The 18 items include Attention and Hyperactivity Disorder (ADHD) symptoms (9 for

inattentive, 9 for hyperactive/impulsive). Average rating-per-item subscale scores for both parent and teacher scales are calculated for the inattention and hyperactivity/impulsivity, subscale scores that can range from 0 to 3. The coefficient alpha for overall parent ratings was .94. For the inattentive, hyperactive/impulsive, coefficient alphas were .90 and .79 respectively. Higher scores are indicative of attention difficulties. Mindfulness has been shown to improve attention and it was predicted that a negative correlation would be observed.

The parent's version of the Behaviour Rating Inventory of Executive Functioning (BRIEF-2; Gioia et al., 2000) for children ages 5-18 years old. The questionnaire is a revision of the original 86 items, reduced to 64 items in eight non-overlapping clinical scales and two validity scales. Scores on the eight scales are obtained (Initiate, Working Memory, Plan/Organise, Organisation of Materials, Monitor, Inhibit, Shift, Emotional Control), along with a Metacognition Index (MCI), Behaviour Regulation Index (BRI), and a Global Executive Composite (GEC). Higher ratings are indicative of greater impairment. The internal consistency coefficients reported for clinical populations using the BRIEF Parent Form range from .82 to .98. Test–retest correlations for clinical populations on the parent form ranged from .72 to .84 (Gioia et al., 2000). As mindfulness skills have been associated with improvement in executive functioning and emotional regulation, a negative correlation was expected.

**Recruitment**

Participants who consented to the first phase and agreed to be contacted again, were sent an email with a link to the POMM-C, SNAP-IV and the SDQ on Qualtrics. A separate link was sent for the BRIEF 2 as this

measure could only be assessed on a separate online support system. The same recruitment methods employed in phase one were also used to recruit additional participants to maximise sample size.

**Participants**

Inclusion criteria remained the same as in Phase one. Parents ($n$ = 25) of children aged 6-9 years old completed the measure in regards to one of their children. Participant characteristics was also consistent with participants in Phase one. The age range of children was 6-9 years ($M$ = 7.91); 28 % aged 6 ($n$ = 7), 24% aged 7 ($n$ = 7), 28% aged 8 ($n$ = 7) and 20% aged 9 ($n$ = 4). 56% ($n$ = 14) were male. The sample was White British 92 % ($n$ = 23) and Black and White British Caribbean 8% ($n$ = 2).

**Analysis**

To determine construct validity, that is whether the POMM-C measured mindfulness, correlations were computed between the POMM-C subscales and the subscales of the SNAP-IV and the SDQ ($n$ = 25). The data collected on the BRIEF-2 was not analysed because of a very low response rate ($n$ = 10). Zero-order correlations and partial correlations were computed controlling for the conceptually closely related processes of inattention and hyperactivity as measured by the SNAP-IV. These latter analyses examine whether mindfulness accounts for significant variance in relevant variables after controlling for the effects of closely related processes.

## Results

On average, POMM-C scores for all participants ($n$ = 202) who completed at T1, T1 ($M$ = 57.07, $SD$ =7.60) and participants ($n$ = 25) at phase 2, ($M$ = 62.20, *SD = 7.78)* were consistent (see Table 7). It was hypothesised that the measure

would positively correlate with prosocial behaviours (see Table 8). Unexpectedly, significant relationships between the POMM-C Acting with awareness and Observing subscales and the SDQ prosocial subscale were not found. It was also hypothesised that items in the measure would correlate negatively with less favourable outcomes such as emotion dysregulation, inattention and challenging behaviour. The POMM-C Acting with awareness and Observing subscales correlated negatively with the SNAP-IV hyperactivity and inattentive scales. The SDQ hyperactivity scale also correlated negatively with Acting with awareness and Observing subscales. The POMM-C Acting with awareness subscale was negatively associated with peer problems, while the Observing scale was negatively associated with the SDQ conduct subscale. Such a negative association may be expected as attention is an important facet of mindfulness (Brown & Ryan, 2003). When controlling for inattention, partial correlations between acting with awareness and hyperactivity were somewhat reduced but still significant and a partial positive correlation was found for the POMM-C Acting with awareness and SDQ emotional scale. However, when controlling for hyperactivity, most of the associations disappeared with the exception of conduct (see Table 8).

Table 7

*Means and Standard Deviations of the SDQ, SNAP and POMM-C for Participants in Phase 2 (n = 25) by Age Group.*

| Age | SDQ | SNAP | POMM-C |
|---|---|---|---|
| 6 (*n* = *7)* | *M* = 18.85 | *M* = 21.14 | *M* = 59.14 |
| | *SD* = *5.39* | *SD* = *8.31* | *SD* = *5.63* |
| 7 (*n* = *6)* | *M* = 17.00 | *M* = 24.85 | *M* = 58.00 |
| | *SD* = 8.18 | *SD* = 13.74 | *SD* = 8.34 |
| 8 (*n* = *7)* | *M* = 17.14 | *M* = 12.85 | *M* = 63.57 |
| | *SD* = *4.55* | *SD* = 6.98 | *SD* = 7.43 |
| 9 (*n* = 4) | *M* = 12.70 | *M* = 5.25 | *M* = 70.75 |
| | *SD* = 5.90 | *SDQ* = 3.20 | SDQ = *4.85* |

Note. SDQ norms for 5-10 years old in the UK (*M* = 8.6*, SD* = 5.7) (Meltzer, Gatward, Goodman & Ford, 2000).

Table 8

*Zero-order and Partial Correlations between the Acting with awareness and Observing Scales of the POMM-C and other Variables (n=25)*

| | Acting with awareness | | | Observing | | |
|---|---|---|---|---|---|---|
| Scales from measures | Zero-order correlation | Partial correlation (control for inattention | Partial correlation (control for hyperactivity) | Zero-order | Partial correlation (control for inattention) | Partial correlation (control for hyperactivity) |
| SNAP-IV hyperactivity | -.741** | -.437* | _ | -.640** | -.365 | _ |
| SNAP inattention | -.678** | _ | -.164 | -.570** | _ | -.107 |
| SDQ prosocial | .122 | .128 | -.025 | .048 | .030 | -.119 |
| SDQ peer problems | -.425* | -.348 | -.315 | -.255 | -.348 | - .086 |
| SDQ hyperactivity | -.718** | -.440* | _ | -.485* | -.118 | _ |
| SDQ conduct | -.130 | .230 | .268 | -.583** | -.461* | -.499* |
| SDQ emotional | -.261 | -.412* | -.175 | -.226 | -.318 | -.281 |

** Correlation is significant at the level 0.01 (2-tailed) * Correlation is significant at the level 0.05 (2-tailed)

**Phase three: Face validity**

In light of the strong associations with hyperactivity and to ensure the POMM-C was measuring mindfulness, face validity of the final 16 item measure was also determined. As defined by Nunnally and Bernstein (1994), face validity is the extent to which a measure reflects what it intends to measure. Similar steps to Reidenbach and Robin (1990), who asked expert judges to assign items to a concept, were applied. As an expert panel were involved in the design of the measure, it was deemed valuable to gain non-expert opinion at this stage. As a guide for an optimal number of respondents required, Bearden and Netemeyer's (1999) review of face validity assessment was referred to. The majority of studies in their review included between 5-15 "judges" to assess face validity of questionnaires. In order to obtain views from non-experts and the target audience, parents were contacted via a social media group. Ten respondents volunteered to read the POMM-C and answer questions provided on a pro-forma (see Appendix K). The pro-forma asked parents to state whether they thought the POMM-C was measuring mindfulness or hyperactivity by choosing a response for each concept. They were asked to indicate yes, no or unsure. Due care was taken not to ask respondents leading questions. Respondents were also asked to provide any additional qualitative feedback regarding the POMM-C. Definitions for mindfulness and hyperactivity were also provided on the pro-forma.

## Results

A large majority of participants ($n$ = 9) chose the 'yes' response for mindfulness, indicating that the POMM-C related to mindfulness as per the definitions provided. Only one participant stated uncertainty about the concept being measured. Three of

the nine participants who stated yes, also provided additional comments. They noted that the following items could also relate to hyperactivity.

1. Child acts without thinking.

4. Child able to show patience e.g., waiting for help at snack/dinner time.

5. Child is able to take a moment in an emotionally charged situation instead of reacting straight away.

7. Child appears to be agitated.

## Discussion

With a growing interest in mindfulness based interventions with children (Zenner et al., 2014), there is a significant need for mindfulness measures for this population. However, only three measures have been developed to assess mindfulness traits in children and these are all self-report measures for children over the age of nine years. This study aimed to address the gap in the literature on the measurement of mindfulness for younger children by developing a 16 item parent observation measure of mindfulness in children aged 6 to 9 years (POMM-C). Through exploratory factor analysis on an initial pool of 26 items, a two factor structure was deemed appropriate. The two factor structure was labelled 'Acting with awareness' and 'Observing'. Items with similar loadings on both factors or loadings below .4 were subsequently discarded, resulting in a final 16 item measure. Findings suggest that the measure is psychometrically promising with good internal consistency and test-retest reliability. Construct validity was less distinct; although an expected association was not found with prosocial behaviours, associations were found with attention, hyperactivity, peer problems, emotional problems and conduct. However, these associations diminished or disappeared when inattention and hyperactivity were controlled for, with the

exception of conduct problems.

Mindfulness has been described as multifaceted, with components of non-judgment, present awareness, acceptance, attention and intention (Dimidjian & Linehan, 2003). As conceptualised in the literature, the present findings partially support the multifaceted nature of mindfulness. There was strong evidence to suggest the POMM-C has a two factor structure, although the two factor structure resulted in a reduction in the percentage of variance explained by the factors, reliance on the eigenvalues of one or above for factor extraction has been consistently found to overestimate factors (Zwick & Velicer, 1986). Similarly, in the development of the FFMQ (Baer et al., 2006) the scree plot was relied on for factor extraction, which identified a five-factor structure accounting for a reduced percentage of variance. The two factor structure however did seem a more appropriate fit for the items generated in the early stages of developing the POMM-C, this was supported by experts in the field of mindfulness based interventions in children. These findings are consistent with the mindfulness literature, as acting with awareness and observing have been found to be key elements of mindfulness (FFMQ; Baer et al., 2006). Greco et al., (2011) also found acting with awareness and non-judgment to be important inter-related facets of mindfulness in their self-report measure for children, the CAMM.

However, it is acknowledged that other facets of mindfulness conceptualised in the literature, were not represented in the factor structure of the POMM-C. For example, in light of a priori knowledge, it was expected that curiosity may have been represented as a facet. However, the items; “child is curious about his/her surroundings” and “child is curious about the feeling of others”, were not closely related to the other items in the POMM-C. Whether curiosity can be considered a

facet of trait mindfulness or state mindfulness is important. It may be that curiosity is enhanced through mindfulness interventions and may be specific to a particular conceptualisation of mindfulness (Bergomi et al., 2013). For example, the TMS (Lau et al., 2006) is the only measure conceptualising curiosity as an aspect of mindfulness and this measures state mindfulness post meditation. Another consideration is that perhaps children are naturally curious and whether this further develops as children mature, may be partly dependant on how their curiosity is nurtured by parents and teachers. Other facets such as de-centring from internal experiences and describing internal experiences were also not represented. This may be related to the stages of cognitive development of the respondent children, as younger children may not be able to adequately describe internal experiences. Metacognitive awareness continues to develop throughout childhood, by age eight children usually begin to develop theory of mind (Schwanenflugel, Fabricius, & Alexander , 1994). As Greco et al. (2011) acknowledge, items related to describing without judgement, were excluded from the CAMM because of the possible variation of cognitive and verbal abilities in the target group. Items asking about the ability to label or describe internal experiences therefore may not have been accurate because of varied abilities in language and comprehension. Understanding of emotions may be age related and vary in relation to cognitive development (Harter, 1982, 1986). Thus these facets of mindfulness may potentially develop in later childhood or early adolescence. The development of mindfulness may also change as children age and progress from childhood to adolescence. For example, a validation study of the CAMM in a Dutch population (de Bruin, Zijlstra, & Bogels, 2014) found slight differences between children aged 10-12 and 13-16 years in regards to facets of mindfulness, where the younger

group of children suppressed emotions and the adolescents had higher levels of distractibility.

The construct validity of the POMM-C was complex in relation to potential overlapping variables, as the relationships with hyperactivity and inattention were large by Cohen's (1992) standards. This suggests that the mindfulness construct, as measured by the POMM-C, is very closely related to these variables. Consistent with research in adult samples, scores on the POMM-C correlated significantly and negatively with maladaptive outcomes. Inattention had a strong relationship to acting with awareness, which was expected. Although this strong correlation could be interpreted as measuring a similar construct, a key facet of mindfulness is attention to the present moment experience (Brown & Ryan, 2003). As attention is closely related to mindfulness, inattention was controlled for in a second analysis. Correlations were lower although still significant for hyperactivity and acting with awareness. In addition, when inattention was controlled for, a partial negative correlation was significant for the SDQ emotional problems scale and acting with awareness. Observing was also negatively associated with inattention and hyperactivity, however the relationship was not as strong. Although observing may also be related to attention, this facet of mindfulness has been conceptualised as noticing internal feelings and sensations (Greco et al., 2006). After inattention had been controlled for, the relationship with hyperactivity was not significant.

Hyperactivity had a high negative correlation with acting with awareness and observing. Given this strong association, hyperactivity was also controlled for in the analysis. The strong associations with inattention and the two facets of mindfulness reduced after hyperactivity was controlled for. This finding could be

interpreted, as the POMM-C being an in-accurate measure of mindfulness and possibly a measure of hyperactivity. However, face validity was assessed and found to be robust with high levels of agreement amongst respondents that the questionnaire measured mindfulness. Although some respondents felt the POMM-C included four items which could be related to hyperactivity, it was felt by the majority, that overall the construct being assessed was mindfulness. The items identified as potentially being related to hyperactivity were "child acts without thinking"; "child able to show patience e.g., waiting for help at snack/dinner time"; "child is able to take a moment in an emotionally charge situation instead of reacting straight away" and "child appears to be agitated". Similar items related to emotion regulation are also present in the FFMQ (Baer et al., 2006), for example "when I have distressing thoughts or images, I am able just to notice them without reacting". Due to the age of the children being assessed and observable behaviours which one would expect to be associated with mindfulness, these four items were therefore retained in the POMM-C following face validity . It is expected that a mindful child will score lower on these items as their ability to self-regulate and have focused attention, will be greater. That is, a mindful child may be observed as calm and appearing focussed in attention, contrary to behaviours which one would expect to observe in a hyperactive child. In fact, mindfulness training has been found to reduce symptoms of inattention and hyperactivity-impulsive behaviours in children aged 8-11 with a diagnosis of ADHD (van der Oord, Bogels, & Peijnenburg, 2012). Thus, it would be expected that hyperactivity and inattention would be negatively related to mindfulness. Mindfulness and hyperactivity may be overlapping constructs, particularly in the way in which these constructs may be observed behaviourally in children.

Similarly, it has been suggested that other constructs related to mindfulness, such as thought suppression and psychological inflexibility are also overlapping (Greco et al., 2011). However, as conceptualised in the literature mindfulness has unique aspects of self-regulation to attention and orientation to openness and acceptance (Bishop et al., 2004). This highlights the complexity of measuring this concept, particularly in children who are continuing to undergo cognitive developments and are still achieving various developmental milestones.

It is also important to highlight that the significant relationship between 'observing' and conduct problems also remained, despite hyperactivity being controlled for. This suggests that the 'observing' facet of mindfulness, which relates to observing emotions, may be negatively related to conduct problems, which was expected. A key component of mindfulness is awareness of present moment and observing internal and external states. Being able to accurately monitor and evaluate emotions is considered an important aspect of emotion regulation (Thompson, 1994). Children, who experience difficulty in labelling and regulating emotions, are at greater risk for behavioural problems (Blair & Razza, 2007). Difficulties in controlling emotions have also been associated with externalising behaviours such as impulsivity and hyperactivity (Zeman et al., 2006). Likewise, non-reactivity to internal experiences, an aspect of emotion regulation, has also been described as a facet of mindfulness (Chadwick et al., 2008).

However, contrary to the predicted positive relationships, the POMM-C was not related to positive outcomes, such as prosocial behaviour as measured by the SDQ. The lack of correlation with positive outcomes is inconsistent with previous research demonstrating that self-reported mindfulness (as identified by

the CAMM) was positively correlated with social skills, quality of life and academic achievement in 10 to 17 year olds (Greco et al 2011). As Smith and McCarthy (1995) suggest it important to measure constructs at the facet level in order to understand the relationship of facets to other variables. Although acting with awareness and observing were closely related to attention, this relationship disappeared after hyperactivity was controlled for. Thus different relationships with variables were found suggesting they represent similar but distinct facets of mindfulness.

This study is among the first to describe the development of a parent observation measure of mindfulness, aiming to satisfy a substantial gap in the empirical literature on assessing mindfulness in young children. Challenges in assessing mindfulness in children via self-report measures, because of developmental issues, have been identified. Greco et al. (2011) also acknowledge a potential limitation of the CAMM in that the items assess internal experiences, which is difficult for others to observe. Further to this, challenges in measuring mindfulness in children as they develop have also been acknowledged in the discussion. In the present study the POMM-C captures two important facets of mindfulness, but does not change in children as they develop emotionally through the life span. It is hoped that the POMM-C may help to further address this shortcoming, offering a valid measure of observed mindfulness in children.

**Strengths and limitations**

The use of expert and parent feedback to guide item development was a particular strength of this study. The experts were able to comment on the relevance and developmental appropriateness of items to ensure that the item represented mindfulness, as opposed to another related construct. Parents were

also able to comment on the developmental appropriateness of items and usability in relation to reporting on their own children. The POMM-C items had good test-retest reliability as parents were able to report observed behaviour consistently over a period of two weeks. Parents have been found to be reliable reporters of their children's observable behaviours (Rothbart et al., 1994).

Nevertheless, there were also a number of limitations in this study. The sample included a larger number of parents reporting on boys than girls. This gender imbalance may limit capacity to compare any possible differences, as boys are slightly overrepresented. The presence of sample bias in relation to parents who responded to the study advertisement must also be considered. It could be that parents who responded, were more concerned about their children. However, the mean scores on the SDQ were only slightly above the UK SDQ norms. Or it could be that parents who responded were parents with better access to computer technology, possibly from a higher socioeconomic background, as well as being more knowledgeable and interested in mindfulness. In addition, the sample size in Phase 1 was less than desired. It was estimated that 260 participants, that is ten participants per item (Floyd & Widamom, 1995), for the original 26-item POMM-C would be required. Such a sample size would have made the factor analysis more robust; however, it has been suggested that as low as five participants per item is acceptable (Byrant & Yarnold, 1995). The 202 participants recruited equates to 7.7 participants per item.

In phase two the sample was under-powered so the correlational analyses need to be treated with caution. The data for the BRIEF-2 precluded analysis due to low response rate. The BRIEF-2 includes a behavioural regulation scale which was hypothesised to positively correlate with the POMM-C. However, the length

of the BRIEF-2, may have been burdensome for parents to complete. In addition, the inclusion of measures of adaptive functioning may have led to positive correlations with the POMM-C. Another limitation relates to the exclusion children under the age of six, which does not increase our understanding of pre-school age children. Zelazo and Lyons (2012) suggest it is important to assess mindfulness in pre-school children as there is little research on the effects of mindfulness in this age group, which is significant given the malleability of executive functioning at this age. Recent research conducted by Flook and colleagues (2015) found mindfulness had positive outcomes for preschool children, the evaluation of mindfulness itself within this age group therefore requires more attention to understand the mechanisms of the changes identified in these positive outcomes. And so the POMM-C would be useful and could be adapted for younger children or validated with a younger sample. This may in turn stimulate further research into mindfulness interventions with preschool children.

Another potential concern about the POMM-C is that some of the items are reverse -scored. Reverse-scored items may not measure the same construct as positively worded items, as endorsement of an item at the low end of a scale does not always imply preference for the opposite end of the scale (Reise & Waller, 2009). However, the usefulness of reverse-scored items may vary with the construct being measured. Brown and Ryan (2003) devised items which reflect the opposite of mindfulness in the development of the MAAS, and found reverse-scored items were more psychometrically sound than positively worded items. Nevertheless, the POMM-C demonstrated good internal consistency; with items

demonstrating high inter-correlations. It is worthwhile noting that the Acting with awareness subscale had 12 items, while the Observing scale had 4 items. Although this unequal number of items in each scale may also be a concern, this potential weakness may be mediated by the high internal consistency found for both scales.

The construct validity of POMM-C was less clear, thus further analysis to assess whether the instrument correlates with other positive adjustment outcomes akin to mindfulness is important given that the sample size was under-powered. It may be equally important to also assess whether the POMM-C correlates with validated mindfulness measures. As the two-factor POMM-C was closely related to attention when hyperactivity was uncontrolled for, and secondly most associations disappeared when hyperactivity was controlled for, it would also be useful to further understand this close relationship. It may be that in this age group, observable behaviours associated with mindfulness may be closely related to the ability to pay attention and children's emotion regulation. The development of mindfulness in childhood, and how this may change as children mature, is a crucial area which warrants further attention. Secondly, confirmatory analysis is required to determine the factorial validity of the POMM-C. This process would involve analysing how well the two factor structure fits the data. Subsequent to this, future research will be needed to examine the sensitivity of the POMM-C in measuring change post mindfulness interventions, as well as its usefulness as a tool for identifying mechanisms of change. For example, do children who participate in mindfulness-based interventions report higher levels of mindfulness traits as measured by the POMM-C? It would also be imperative to use the POMM-C alongside other modes of observing children. Thus, adapting the POMM-C to obtain a teachers report version would also enhance the research field. It will also

be useful to investigate the psychometric properties of the POMM-C in more diverse samples, as this research focuses largely on responses from White British parents. Emotion regulation and expression may differ in diverse populations, most likely to be influenced by a cultural context, customs and societal expectations (Mesquita & Albert, 2007). It would also be interesting to examine cultural differences in mindfulness. For example, de Bruin et al. (2014) found that Dutch children scored higher on mindfulness compared to American children in their validation of the CAMM in The Netherlands.

**Clinical and theoretical implications**

It has been suggested that all individuals are capable of being mindful but may differ on the degree of mindfulness (Kabat-Zinn, 2003). Evidence from developmental neuroscience suggests that mindfulness can be effective in the development of self -regulation of emotion, thought and action in children (Zelazo & Lyons, 2012). As mindfulness based interventions have been found to be beneficial with children in both community and clinical samples (Zenner et al., 2014) the application of the POMM-C to assess change is important. Mindfulness based interventions have been found to reduce anxiety, attention and behavioural problems in children in a clinical population (Burke, 2009; Greenberg & Harris, 2012). Thus the applicability of the POMM-C to clinical populations is also significant. As mindfulness interventions are more commonly used in clinical samples to address mental health issues the use of appropriate tools for measuring outcomes are essential. In addition, mindfulness based interventions are also increasingly being used in secondary schools and it has been suggested that such approaches should be incorporated in the curriculum (Kuyken et al., 2013). In spite of this interest, there is a notable absence of measures directly assessing

mindfulness in children (see Zenner et al., 2014). It is hoped that the POMM-C would address this gap and may be used along other psychological outcome measures to identify mechanisms for change and determine treatment effects.

## Conclusion

This study aimed to develop a parent observation measure of mindfulness in children aged six-nine years old. A 16 item questionnaire, The Parent Observation Measure of Mindfulness in Children (POMM-C) was developed and the analysis suggests this measure consists of two factors: Acting with awareness and Observing. Hypotheses relating to construct validity were partially supported as the POMM-C was found to negatively correlate with the SNAP-IV and SDQ hyperactivity scale. However, the expected associations were not observed with the prosocial scales of the SDQ. Future research should focus on determining the construct validity of the POMM-C with more diverse populations. The development of the POMM-C will hopefully stimulate further research into mindfulness interventions with children, which has largely relied on generic measures not specifically assessing mindfulness. It is anticipated that the development of this measure may also further our understanding of the multifaceted nature of mindfulness in children.

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6th May 2015
Nicole Gibson
Trainee Clinical Psychologist
Department of Psychology
Western Bank

**Project title:** Constructing a Parent Observation Measure of Mindfulness in Primary School Children.

**6 digit URMS number:** 143476

Dear Nicole Gibson,

**LETTER TO CONFIRM THAT THE UNIVERSITY OF SHEFFIELD IS THE PROJECT'S RESEARCH GOVERNANCE SPONSOR**

The University has reviewed the following documents:

1. A University approved URMS costing record;
2. Confirmation of independent scientific approval;
3. Confirmation of independent ethics approval.

All the above documents are in place. Therefore, the University now **confirms** that it is the project's research governance sponsor and, as research governance sponsor, **authorises** the project to commence any non-NHS research activities. Please note that NHS R&D approval will be required before the commencement of any activities which do involve the NHS.

You are expected to deliver the research project in accordance with the University's policies and procedures, which includes the University's Good Research & Innovation Practices Policy: www.shef.ac.uk/ris/other/gov-ethics/grippolicy, Ethics Policy: www.sheffield.ac.uk/ris/other/gov-ethics/ethicspolicy and Data Protection Policies: www.shef.ac.uk/cics/records

Your Supervisor, with your support and input, is responsible for monitoring the project on an ongoing basis. Your Head of Department is responsible for independently monitoring the project as appropriate. The project may be audited during or after its lifetime by the University. Monitoring responsibilities are listed in Annex 1.

Yours sincerely

Dr Andrew Thompson
Director of Research Training, Clinical Psychology Unit

Cc: Dr Lisa-Marie Emerson (supervisor);
Dr Georgina Rowse (supervisor);
Professor Paul Overton (Head of Department).

# Appendix D

**Expert feedback proforma**

Please rate the items in the excel file, see instructions below.

Rating out of 5 how sufficiently you think each items measures mindfulness: 0= Not at all item = redundant, 1 = Very weak measure of mindfulness, 2 = weak measure of mindfulness, 3 = moderate measure of mindfulness, 4 = strong measure of mindfulness, 5 = very strong measure of mindfulness.

1) Providing any comments on amendments to items that you would recommend.
2) Providing suggestions for any additional items.

   Providing feedback on items that you think we could prune as they are too similar to other items coding these 'P'.

Appendix E

**Mindfulness Items**

These are the instructions that will be on the questionnaire. Please note the questionnaire will be on a different format online.
Please answer these questions about your selected child, based on your observations of that child in the school setting over the last month.
Please rate on the following scale:

1 = never true 2= rarely true 3 = sometimes true 4 = often true 5 = always true

1. Child acts without thinking first
2. Child is caring (and empathetic) towards others
3. Child is curious about surroundings
4. Child is able to put into words how they are feeling (physically)
5. Child is aware of their emotions - can put into words how they feel
6. Child is able to show patience, e.g. waiting for their turn in a game, for teacher/parent assistance, for snack/dinner time, for a response in conversation
7. Child quickly `loses it' or `flies off the handle' when things do not go his or her way
8. Child will take a moment to pause in an emotionally charged situation as opposed to reacting straight away
9. Child appears to be preoccupied e.g. with worries
10. Child is resilient (e.g. can/cope recover from playground disputes (teacher) / arguments with siblings or friends (parent)
11. Child appears fidgety
12. Child appears agitated
13. Child can avoid distractions when doing his/her work
14. Child seems to be on ‘auto-pilot’ without awareness of what he or she is doing
15. Child is able to and listen carefully and follow instructions
16. Child breaks/spills things because of inattention/being distracted
17. Child appears to be lost in daydream
18. Child appears alert and attentive
19. Child is aware of what is around him/her when playing outside
20. Child notices changes in environment (e.g. in playground (
21. Child notices visual qualities (e.g. colours, shapes, textures, patterns of light/shadow)
22. Child appears to be aware of his/her surroundings
23. Child considers how his/her actions affect others

24. Child is curious about others feelings
25. Child attends to the answers given to questions they ask
26. Child points out things of interest

Default Question Block

# Welcome to the:
# Constructing a Parent-rated Observational Measure of Mindfulness in children (ages 6-9 years) r

# esearch study

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## Constructing a parent observation measure of Mindfulness in Children (ages 6-9)

### Information for Parents

I am a Trainee Clinical Psychologist studying at the University of Sheffield. I am conducting a research study and would like to ask you for your participation. The aim of this project is to develop a

parent observation questionnaire about mindfulness in children aged of 6- 9 years.

What is mindfulness?

Mindfulness has been defined as an awareness of being in the present moment and paying close attention to experiences in that moment. Mindfulness approaches have been used in schools and have been found to improve behaviour, attention and help children control their emotions. The questionnaire is being developed so that it can be used in the future to measure how effective mindfulness approaches with children are. This will allow us to understand more about mindfulness as an approach to help children.

The study

This **first phase** of this study focused on the development of this questionnaire to ensure the right questions were being asked. Participants were asked to complete a mindfulness questionnaire in relation to one child aged 6- 9 years old.

The **second phase** of this study will involve completing a revised version of the mindfulness questionnaire and additional questionnaires of a child's functioning in relation to behaviour, emotions and attention. These measures are the Strength and Difficulties Questionnaire (SDQ), the SNAP and the Behaviour Rating Inventory of Executive Functioning (BRIEF 2). A separate email will be sent with the link to the BRIEF 2. These measures have already been tested on a large number of participants and are used in the present study to test the validity of the Mindfulness measure.

You will be asked to provide some details about your child; such as age, gender, and ethnicity. The child's identity will remain anonymous. The information you provide us with will be kept in a secure database and your identity protected, in accordance with the UK Data Protection Act 1998. You will be given a unique code to identify you, in order to maintain your anonymity.

If you have any further questions please contact me on the email address below:
ngibson1@Sheffield.ac.uk

If the questionnaires raise any concerns about your child, please contact your GP. You are free to withdraw from this study at any time and there will be no consequences should you decide to withdraw.

Any complaints can be addressed to: Dr Georgina Rowse or Dr Lisa Marie Emerson at the Clinical Psychology Unit, Department of Psychology, The University of Sheffield, Western Bank, Sheffield, S10 2TN.

If you feel that your complaint has not been handled to your satisfaction following this, you can contact The Office of the Registrar and Secretary, Firth Court, Western Bank, Sheffield S10 2TN.
Telephone: 0114 222 1100 Fax: 0114 222 1103
email: registrar@sheffield.ac.uk

Thank you for your time.
Nicole Gibson
Trainee Clinical Psychologist
University of Sheffield

Appendix G



The University Of Sheffield.

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**Clinical Psychology Unit**

Doctor of Clinical Psychology (DClin Psy)
Programme Consultation
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**University of Sheffield**
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**Consent form**

**Title of Research Project: Constructing a parent observation mindfulness measure for school children (6-9).**

**Name of Researcher: Nicole Gibson**
**University of Sheffield**

I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project.

- YES
- NO

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.

- YES
- NO

I understand that my responses will be kept strictly confidential.
I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.

- YES
- NO

**Communalities**

| | Initial | Extraction |
|---|---|---|
| item 1 | 1.000 | .431 |
| item 2 | 1.000 | .175 |
| item 3 | 1.000 | .397 |
| item 4 | 1.000 | .444 |
| item 5 | 1.000 | .464 |
| item 6 | 1.000 | .317 |
| item 7 | 1.000 | .432 |
| item 8 | 1.000 | .321 |
| item 9 | 1.000 | .222 |
| item 10, | 1.000 | .150 |
| item 11 | 1.000 | .417 |
| item 12 | 1.000 | .541 |
| item 13 | 1.000 | .428 |
| item 14 | 1.000 | .446 |
| item 15 | 1.000 | .504 |
| item 16 | 1.000 | .366 |
| item 17 | 1.000 | .242 |
| item 18 | 1.000 | .479 |
| item 19 | 1.000 | .404 |
| item 20 | 1.000 | .521 |
| item 21 | 1.000 | .486 |
| item 22 | 1.000 | .388 |
| item 23 | 1.000 | .483 |
| item 24 | 1.000 | .395 |
| item 25 | 1.000 | .358 |
| item 26 | 1.000 | .464 |

Extraction Method: Principal Component Analysis.

| | | | | |
|---|---|---|---|---|
| turn | ○ | ○ | ○ | ○ |
| Often interrupts or intrudes on others (e.g., butts into conversations/games) | ○ | ○ | ○ | ○ |

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**Part 2**

## The Strengths and Difficulties Questionnaire

Goodman, R. (2005)

**For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.**

| | Not True | Somewhat True | Certainly True |
|---|---|---|---|
| Considerate of other people's feelings | ○ | ○ | ○ |
| Restless, overactive, cannot stay still for long | ○ | ○ | ○ |
| Often complains of headaches, stomach-aches or sickness | ○ | ○ | ○ |
| Shares readily with other children (treats, toys, pencils etc.) | ○ | ○ | ○ |
| Often has temper tantrums or hot tempers | ○ | ○ | ○ |
| Rather solitary, tends to play alone | ○ | ○ | ○ |
| Generally obedient, usually does what adults request | ○ | ○ | ○ |
| Many worries, often seems worried | ○ | ○ | ○ |
| Helpful if someone is hurt, upset or feeling ill | ○ | ○ | ○ |
| Constantly fidgeting or squirming | ○ | ○ | ○ |
| Has at least one good friend | ○ | ○ | ○ |
| Often fights with other children or bullies them | ○ | ○ | ○ |
| Often unhappy, down-hearted or tearful | ○ | ○ | ○ |

| | | | | | | |
|---|---|---|---|---|---|---|
| environment and shows age-appropriate caution | ○ | ○ | ○ | ○ | ○ | ○ |
| 17. Child considers how his/her actions affect others | ○ | ○ | ○ | ○ | ○ | ○ |

## SNAP-IV Teacher and Parent Rating Scale

James M. Swanson, PhD

**For each item, select the response that best describes this child. Please only put one check per item.**

| | Not al all (0) | Just a little (1) | Quite a bit (2) | Very much (3) |
|---|---|---|---|---|
| Often fails to give close attention to details or makes careless mistakes in schoolwork, work or other activities | ○ | ○ | ○ | ○ |
| Often has difficulty sustaining attention in tasks or play activities | ○ | ○ | ○ | ○ |
| Often does not seem to listen when spoken to directly | ○ | ○ | ○ | ○ |
| Often does not follow through on instructions and fails to finish schoolwork, chores or duties | ○ | ○ | ○ | ○ |
| Often has difficulty organizing tasks and activities | ○ | ○ | ○ | ○ |
| Often avoids , dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g. schoolwork or homework) | ○ | ○ | ○ | ○ |
| Often loses things necessary for tasks or activities (e.g. toys, school assignments, pencils, books, or tools) | ○ | ○ | ○ | ○ |
| Often is distracted by extraneous stimuli | ○ | ○ | ○ | ○ |
| Often is forgetful in daily activities | ○ | ○ | ○ | ○ |
| Often fidgets with hands or feet or squirms in seat | ○ | ○ | ○ | ○ |
| Often leaves seat in classroom or in other situations in which remaining in seat is appropriate | ○ | ○ | ○ | ○ |
| Often runs or climbs excessively in situations which it is inappropriate | ○ | ○ | ○ | ○ |
| Often has difficulty playing or engaging in leisure activities quietly | ○ | ○ | ○ | ○ |
| Often is "on the go" or often acts as if "driven by motor" | ○ | ○ | ○ | ○ |
| Often talks excessivley | ○ | ○ | ○ | ○ |
| Often blurts out questions before questions have been completed | ○ | ○ | ○ | ○ |
| Often has difficulty awaiting | | | | |

Appendix K

**Pro-forma**

**Please state whether the questionnaire measures hyperactivity or mindfulness based on the definitions provided below.**

Hyperactivity has been defined as "the condition of being abnormally or extremely active. Constantly active and sometimes disruptive behaviour, occurring primarily in children." Oxford Dictionary

"A mental state achieved by focusing one's awareness on the present moment, while calmly acknowledging and accepting one's feelings, thoughts, and bodily sensations" Oxford dictionary

After reading through the questionnaire, please indicate whether you think the questionnaire is measuring mindfulness or hyperactivity by selecting "yes," "no" or "uncertain" for each concept.

| | Yes | No | Uncertain |
|---|---|---|---|
| 1) Hyperactivity | | | |
| 2) Mindfulness | | | |

Additional comments: