

# How do parents perceive and utilize knowledge of their infant's mental health? A systematic review

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## Abstract

Infant mental health (IMH) is a growing area of practice for health, education and social care practitioners, as links are increasingly made between experiences in the early years and subsequent child development, mental health and well-being. It is unclear how parents perceive IMH and use knowledge relating to IMH with their children. We conducted a systematic review, the aim of which was to determine parents' perceptions of IMH and how they utilize this knowledge with their infants. We undertook a search of relevant databases and journals and from an initial list of 4147 potential papers, identified 16 for the review. Original data were extracted and presented in a table, and the content of all papers was analysed thematically and presented in narrative form. Three main themes emerged from the available research: knowledge and understanding of child development, influences of society and culture, and interpretation of emotions and expressions. Our results indicate that research is limited in terms of parental perspectives of IMH and how they obtain and use this knowledge. Further research is needed to investigate this topic to maximize mental well-being in infancy and later life.

**Keywords** Culture, infant mental health, parental perceptions, parenting, systematic review

## Introduction

Promoting the development of good mental health in utero and infancy is one of the key components for well-being throughout life (Public Health England (PHE), 2016). Infancy is a critical period of neurological development (Sanes and Jessell, 2013), as early experiences during childhood have been shown to have an impact upon brain development (Sheridan and Nelson, 2009). The environment in which children live affects their biological development, through a process called 'biological embedding', which leads to neural development and neural sculpting (Irwin et al., 2007: 21). Although the brain continues to develop throughout the life course, the neurological development that takes place within the prenatal period and first three years of life provides a foundation that influences our emotional, perceptual and cognitive abilities and subsequently our learning as we progress through life (Fox et al., 2010).

Infant mental health (IMH) is defined as the ability of infants to develop physically, cognitively, and socially in a manner which allows them to master primary emotional tasks of early childhood without serious disruption caused by harmful life events. Because infant growth is maximized in a nurturing environment, infant mental health involves the psychological balance of the infant-family system. (Fitzgerald and Barton, 2000: 28).

The environmental factors that influence a child's development and subsequently their mental health are multiple and complex, extending from the individual child to the global context (Irwin et al., 2007). The focus on how early experiences influence the developing brain has led to the promotion of infant emotional and social development through early interventions aimed at children aged between zero year and three years (Allen, 2011). Early interventions focus on parenting as the source of infant brain development, the emphasis usually upon the action of parents, particularly the mother (Lowe et al., 2015). Parenting practices and understanding of child development are shaped by the culture of communities, for example, the activities, practices, beliefs and ecology of the settings, in which children and their carers live (Weisner, 1996). However, central to IMH is the infant's subjective experience of the world, and this initially takes the form of relationships with caregivers (Zeanah and Zeanah, 2009). Quality of the infant-parent relationship may impact the development of adult psychiatric disorders; particularly when the relationships are neglectful and intrusive (Fryers and Brugha, 2013).

Encouraging parents to create an environment to maximize IMH is a key task for health and social care professionals (Department Health, United Kingdom and NHS England, 2015; PHE, 2016). Yet little is established regarding parents knowledge of their infant's mental health. Therefore, the aim of this systematic review was to explore how parents perceive and utilize the knowledge of their infant's mental health, with a view to informing professionals of the best way to support them. The objectives were to (1) identify what IMH means to parents, (2) consider how parents gather knowledge of IMH, (3) explore how parents use their knowledge of IMH and (4) consider how health and social care professionals can utilize the current evidence to promote IMH with parents.

## **Methods**

A systematic review can be used to identify and evaluate the current evidence on a topic and is used frequently in a healthcare context as a foundation for recommendations and policies (Centre for Reviews and Dissemination (CRD), 2009). Using guidance provided by the CRD (2009), a search of the literature was undertaken using both electronic and manual methods to find empirical studies in peer reviewed English language journals published between end of January 1992 and December 2017. The search strategy outlined in Table 1 identifies the descriptors used to identify population groups and terms to establish parental perception and knowledge. As an extensive amount of brain development takes place in the prenatal period up until the age of 2, the search focused on infants aged from zero year to two years (Fox et al., 2010; Knickmeyer et al., 2008).

Figure 1 outlines the study selection process. All authors were involved in the selection process, with any difference of opinion resolved through group discussion. A total of 103 papers were read, 56 papers were excluded for the following reasons: the child's age did not meet the inclusion criteria in 18 papers; in 37 papers, the research question was not addressed and one paper was not retrievable. A further 47 papers were appraised for quality, using the 'QualSyst' tool (Kmet et al., 2004), which allows the appraisal of both qualitative and quantitative research using a list of criteria (such as sample size, use of blinding, appropriateness of analytical method) to address the quality of each (Kmet et al., 2004). Two researchers assessed papers independently and any disagreements were discussed until a consensus was reached. We included papers of a high methodological quality only (scoring 80% or more); subsequently, 16 papers were included in the review. Risk of bias was addressed through robust definition of eligibility criteria, independent selection of studies for inclusion, involvement of several authors, using a recognized tool for quality appraisal of the research and appropriate methods for synthesis of findings (Whiting et al., 2016).

## **Data abstraction**

Characteristics of individual studies were abstracted according to the four research objectives, with groupings and clusters of study characteristics, such as methodology and focus of study (Supplementary Table 1). Due to heterogeneity of the methods, samples and outcome measures, neither meta-analysis nor meta-synthesis was possible. Data from the studies were synthesized using thematic analysis, which involves identifying key and repeated findings from the studies and arranging them under thematic headings (Dixon Woods et al., 2004). The results are presented in narrative form.

## **Results**

The study selection and quality appraisal process outlined above yielded 16 papers.

Of the 16 studies, 9 were conducted in the United States, 2 in Italy, 1 in the United Kingdom, 1 in Australia, 1 in Germany, 1 in Switzerland and 1 in Korea. Four studies were undertaken using qualitative methods (Dallas et al., 2000; Degotardi et al., 2008; Kurth et al., 2014; Moscardino et al., 2006). The remaining 12 studies were undertaken using quantitative methods. Of these, eight studies were based on a cross-sectional approach (Bornstein et al., 2001; Hane et al., 2006; Harwood, 1992; Harwood et al., 1996; Keller et al., 2003; Seo, 2006; Stoiber and Houghton, 1993; Turner et al., 2008) and four were longitudinal studies (Donovan et al., 2007; Huang et al., 2005; Jessee et al., 2016; Miller and Harwood, 2002). Inferential statistics were used to analyse data in all the quantitative studies. Cohort sizes ranged from 7 to 1114 participants.

It is noteworthy that it was not possible to answer in full the research objectives due to limited research in this area. We found that the research almost exclusively focused on mothers alone, apart from one set of authors who reported findings related to both parents (Dallas et al., 2000). All studies included data on participants' perceptions of IMH, and how they might gather

knowledge of this. In nine studies, authors reported how participants used knowledge relating to their infant's mental health (Bornstein et al., 2001; Dallas et al., 2000; Donovan et al., 2007; Huang et al., 2005; Keller et al., 2003; Kurth et al., 2014; Miller and Harwood, 2002; Moscardino et al., 2006; Seo, 2006). The themes identified from the literature are (1) knowledge and understanding of child development; (2) influences of society and culture; and (3) interpretation of infant emotions and expressions.

## **Knowledge and understanding of child development**

The research within this theme focused primarily upon measuring maternal knowledge of child development and the relationship of this to child development outcomes and parenting behaviour. Specific groups, related to ethnicity, socio-economic status and age are the focus for the research, including teen parents (Dallas et al., 2000; Stoiber and Houghton, 1993),

Korean working mothers living in poverty (Seo, 2006), and differing ethnic and demographic groups from within the United States, were part of an intervention called healthy steps (Huang et al., 2005). The research methods for the studies drew upon an imposed etic approach (Berry, 1969), all relying upon testing parental knowledge and behaviours using measuring tools that are not culturally specific or sensitive. There are some universals in child development between cultures, usually defined in Western terms as age-specific developmental milestones (e.g. social smiling), but there are differences structured by cultural environments and the expectations and experience of infant carers' in relationship to their development (Super and Harkness, 1986, 2010).

Seo (2006) and Stoiber and Houghton (1993) demonstrated that higher levels of maternal knowledge relating to child development resulted in children with better developmental outcomes and more positive parenting behaviours. However, the impact of maternal knowledge of child development on parenting behaviours may be situation specific. Huang et al. (2005) reported that knowledge of child development only influenced parenting behaviours when engaged in a teaching task, with lower levels of knowledge associated with a less sensitive interaction during the task. This may not be the same for all ethnicities and social groups, for example, White American mothers' greater knowledge of child development was associated with better interaction during a teaching task; this was not the case for Hispanic and African-American mothers (Huang et al., 2005). Whereas lower levels of child development knowledge in Hispanic mothers were positively associated with a quality home environment and better interaction with their child during play (Huang et al., 2005).

Maternal perceptions that were mature positive, and realistic about child behaviour resulted in children with better coping strategies (Stoiber and Houghton, 1993), while providing a more stimulating home environment was linked to increased knowledge of child development (Seo, 2006). The participants in the study by Dallas et al. (2000) reported gathering their knowledge of child development from family and neighbour's recollections of themselves as children, emphasizing how child development is influenced by social networks (Lewis, 2005). However, for the purposes of the research, an expert text by Green, 1994, cited by Dallas et al., 2000,

decided normal variations in child development. In using this approach, Dallas et al. (2000) found that teen mothers and fathers had unrealistic expectations of child developmental milestones.

## **Influences of society and culture**

The literature depicts what IMH means to parents through the study of social and cultural factors; measuring how parents, mostly mothers, view child behaviours, the parenting practices they use to promote specific child behaviours and how they perceive their parenting. Examining child development from a cultural perspective involves considering children and their parents as part of a community and the practices of everyday life (Rogoff, 2003; Weisner, 2002). The focus is upon comparing the beliefs and practice from mothers of differing ethnicities, socio-economic groups, immigration status and regional areas. Bornstein et al. (2001), Miller and Harwood (2002) and Moscardino et al. (2006) focus upon maternal beliefs and parenting practice in terms of the infant behaviour encouraged showing how parents gather knowledge and use their knowledge of IMH, while Harwood (1992) and Harwood et al. (1996) consider maternal beliefs relating to desirable and undesirable child behaviours.

Studying child development within a cultural context usually involves one of three methodological approaches (Super and Harkness, 2010): ethnographic, used by Moscardino et al. (2006); social address, comparing groups from two or more cultures, used by Harwood (1992) and Harwood et al. (1996); and unidimensional, comparing two contrasting societies, used by Bornstein et al. (2001) and Miller and Harwood (2002).

Cultural background influenced maternal perceptions of desirable child behaviour. For example, Anglo-American mothers valued behaviours that demonstrated toddler independence, and scope for personal development, while Puerto Rican mothers viewed interdependence and ability to maintain respectful behaviours in public as important (Harwood, 1992; Harwood et al., 1996; Miller and Harwood, 2002). Maternal parenting practices demonstrate some differences that appear to encourage these behaviours. For example, Anglo-American mothers encouraged self-feeding at the ages of 8 and 12 months and engaged in social play that encouraged infant choice and movement. Puerto Rican mothers were more likely to spoon feed their infants at 12 months and encourage quieter more interactive social play (Miller and Harwood, 2002). The research does not describe contextual factors such as the environment, which influence the choice of parenting behaviours, a criticism of both the social address and unidimensional approaches (Super and Harkness, 2010).

Moscardino et al. (2006) found that child behaviours reflecting autonomy, respect and a calm personality were viewed as significant by the first generation Nigerian immigrant mothers living in Italy. These mothers promoted autonomy by helping their infants to develop their motor skills through games and use of massage. They also believed that close physical contact with their infant was required for infant health, reporting parenting behaviours to promote this, including co-sleeping, infant massage and breastfeeding (Moscardino et al., 2006). However, the mothers used Italian medical services for their child and expressed the desire for their babies

to understand the systems of their new country (Moscardino et al., 2006). This suggests an ecocultural approach to child development, as these mothers recognized the need to adapt their parenting behaviours to encourage their children to adopt activities that would help them thrive in their environment (Weisner, 2002). Some authors attempted cross-cultural studies. The consideration of parenting behaviour by applying frameworks for comparison is problematic, as each society will place a different meaning on their behaviour (Berry, 1969). Some researchers attempted to overcome this; for example, Harwood (1992) demonstrated that maternal perspective of what is desirable and undesirable attachment behaviour as framed by the Strange Situation experiment differs dependent on Puerto Rican or Anglo origin. This is achieved by using a derived etic approach, meaning that frameworks for studying beliefs are created using an insider emic approach (Berry, 1969). The derived etic approach allows the identification of cultural patterns, the identification of which may then become an imposed etic approach (Rogoff, 2003).

### **Interpretation of infant emotions and expressions**

Central to human development is emotional growth, depending upon the reciprocal interpretation of cues between primary caregiver and infant (Bornstein et al., 2012). In determining how parents gather and use knowledge of their infants mental health, we found that researchers focused on how the dyadic relationship between primary caregiver (usually the mother) and infant shapes the regulation of one's own emotions and subsequent social relationships with others (Lewis, 2005). The papers included in this theme largely focused upon the ability of mothers to interpret infant emotions and expressions, measured by knowledge of child development and maternal beliefs, reflecting the importance given to the dyadic relationship in research. The research largely disregards how exposure to fathers, other caregivers, community and social networks will influence the care infants receive and the significance placed on infant emotions and expressions (Lewis, 2005; Weisner, 2002).

Turner et al. (2008) assessed the link between the mentalization and executive-functioning abilities of mothers, their capacity to recognize signals of infant emotion and self-reported perception of the bonding relationship with their baby. Testing of maternal abilities and perspectives occurred using a series of assessment tasks, which apart from the appraisal of the bonding relationship did not include reference to their own baby. For example, maternal ability to assess signals of infant emotion was undertaken using a collection of photographs of infant facial expressions, called the 'infant facial expressions of emotions from looking at pictures' (Emde et al., 1987, cited by Turner et al., 2008: 502). Use of this type of assessment tool to assess emotional expressions is questionable, when evidence suggests that infants engage with their caregivers in mutually coordinated interactions to create shared meanings (Tronick and Beeghly, 2011). In fact, another paper in this section highlights that maternal perceptions of infant emotions may be context dependent. With mothers agreeing with observer ratings of infants who display high amounts of negativity during home-based activities and agreeing with observer ratings of infant positivity when they experienced low positivity in affect when playing with their infant, suggesting that maternal perception of infant emotion is influenced by the importance of the context and interaction to them (Hane et al., 2006).

This study was conducted in home as well as laboratory settings, which may add to the validity of the findings, as laboratory is not usual environment for mothers and their babies. The research by Turner et al. (2008) did not support a link between executive functioning and bonding relationship with maternal ability to recognize emotional cues from infant facial expressions. A strong positive association did emerge between maternal ability to identify mental states and interpret infant facial expressions, indicating a link between maternal ability to recognize infant emotions and mentalization.

Donovan et al. (2007) use laboratory research to explore if maternal self-efficacy mediated by knowledge of child development anticipated behavioural sensitivity of a mother when feeding her child. The suggestion was that maternal sensory sensitivity, operationalized by maternal ability to determine digital impressions of unrelated infant expressions, would mediate the relationship. Similar to the research by Turner et al. (2008), the focus is not upon the mother and child or family relationship but upon one individual in the relationship (namely the mother), therefore ignoring the interactive nature of the relationship and predetermining the type of behaviour expected from the individual (Burman, 2017). Mothers undertook a mixture of questionnaires and childcare tasks, and a relationship was revealed between the ability to interpret positive and negative infant facial expressions to maternal self-efficacy, with high self-efficacy resulting in greater behavioural sensitivity and more positive emotional responses than low/moderate self-efficacy. The operationalization of self-efficacy was organized using a measure of illusory control, with high illusory control determined as low self-efficacy, moderate illusory control as high self-efficacy and low illusory control as moderate self-efficacy. Knowledge of child development was a mediating factor with those mothers having moderate self-efficacy and low knowledge of child development demonstrating less sensitive behaviour than mothers with high self-efficacy. Maternal high self-efficacy and high knowledge of child development were associated with greatest sensory sensitivity to infant facial expressions, while mothers with the low self-efficacy and moderate to high knowledge levels were the least sensitive (Donovan et al., 2007). Measurement of maternal behavioural sensitivity was undertaken using a scale devised by Ainsworth et al. (1974, cited by Donovan et al., 2007). Keller et al. (2003) also used this scale to observe the interaction between three parenting behaviours of warmth, contingency and sensitivity in response to infant communications and maternal attitudes towards their infants. While Donovan et al. (2007) and Keller et al. (2003) made adjustments to the scale to conform with their research, the identification of parenting behaviours is problematic as constructs such as sensitivity are culturally situated and determined by individual interpretations of behaviour between mother and infant (Burman, 2017). The expectation by Keller et al. (2003) was that a cultural commonality exists between the three parenting behaviours of warmth, contingency and sensitivity demonstrated by maternal attitudes in their views of these behaviours and their infants. The sample was homogenous in terms of nationality, ethnicity, socio-economic status and contained mothers with first-born children only. However, the choice of research instruments reflected an imposed understanding of the variables under study, and these were not sufficiently adapted to meet the understanding that research participants may have the experience (Rogoff, 2003). The subsequent results of the study were unexpected in that observations of maternal sensitivity were significantly associated with maternal attitudes

towards contingency, rather than, for example, observations of maternal warmth being associated with maternal sensitivity.

Jessee et al. (2016: 70) assessed the supportive parenting behaviours of 1114 mothers, when their child was aged 24 months, using measures of 'sensitivity to non-distress', 'stimulation to cognitive development' and 'positive regard for the child'. Development of the scale to measure supportive behaviour took place in an earlier study involving the same sample, and there is limited explanation regarding how the content of the measures was decided (National Institute of Child Health and Human Development, 1999). Arguably, these measures reflect an idealized version of maternal behaviour and are assumptions of what constitutes supportive parenting behaviours. The behaviours were assessed alongside maternal ability to engage in cognitive mental state talk and emotional/desire state talk, measured using coding practices identified by the authors from related literature. The research demonstrates that maternal actions of supportive behaviour, cognitive mental state talk and emotional/desire state talk are separate features of maternal parenting behaviour. The longitudinal nature of the research allowed for comparison of maternal parenting behaviours alongside maternal depressive symptoms assessed at one and six months postnatal, infant temperament assessed at six months postnatal and beliefs regarding parenting assessed when the infant was one month of age. Depressive symptoms at 1 and 6 months postnatal were associated with less supportive parenting behaviour at 24 months, while progressive rather than traditional parenting beliefs were associated with higher levels of supportive behaviour, cognitive mental state talk and emotional/desire state talk. Mothers from higher socio-economic groups and whose children were European-American demonstrated more supportive behaviour and cognitive talk, suggesting that the constructs used to form the measures reflect the consequence of psychology undertaking research using mainly 'Western, Educated, Industrialized, Rich and Democratic (WEIRD) societies' (Henrich et al., 2010: 61).

Kurth et al. (2014) use interpretive phenomenology to analyse maternal experiences of infant crying and Degotardi et al. (2008) use grounded theory to develop a conceptual framework of mothers' beliefs about their infant's minds. The methods move from an emic to a derived etic approach, using maternal experiences to understand the phenomenon and progressing to researcher interpretation based on participant experiences (Rogoff, 2003). Authors of neither papers report the use of respondent validation and therefore it is difficult to ascertain if the subsequent researcher analysis would be recognizable to participants (Bryman, 2012). Experience helps mothers to manage infant crying, in terms of recognizing the severity of the cry, having the confidence to manage infant crying and managing their own reactions to crying (Kurth et al., 2014). Mothers attribute psychological states to their infants, which the child may realize, giving some indication as to how children come to be able to interpret their own behaviour and that of others (Degotardi et al., 2008). Two categories of infant behaviour were identified from interviews with mothers of infants aged 12–24 months, non-psychological and psychological. While mothers viewed the infant as the passive recipient of psychological experience, they also interpreted their infant behaviour as constructing psychological meaning to external events, using this knowledge to communicate. Mothers acknowledged the ability of



infants to be individual in their expressions, having the ability to express what they want to achieve (Degotardi et al., 2008).

## **Discussion**

Despite some interesting themes emerging from the literature regarding parental, particularly maternal perceptions and knowledge of IMH, it is difficult to fully answer the first three objectives of the systematic review for three reasons: first, the use of definitions to operationalize the concept of IMH; second, the dominance of developmental psychology in this field; and last, the positioning of mothers as research subjects.

Adopted by the World Association of IMH (2018), the definition used to generate search terms for this review is perhaps more recognisable to educational and research professionals than parents. The majority of the research presented originates from developmental psychology, where decisions on units of measurement and how to measure them during the research process represent wider beliefs about the place that mothers and children hold in society (Burman, 2017). The focus on the dyadic relationship and the behaviour of just one participant, usually the mother, lacks the consideration of the structural factors that influence how the infant is cared for (Burman, 2017). Therefore, the instruments used to measure maternal behaviours in most of the research presented here are detached from the reality and complexity of participants' everyday lives. The emphasis on the dyad and the theory of monotropy suggests that the attachment relationship dominates the focus of research included in this review. Subsequently, ignoring environmental considerations, failing to capture the intricacy of the infant's social world and the influence these factors have upon decisions are related to child rearing (Keller, 2017; Weisner, 2005), whereas child development theories and concepts emphasize the importance of the cultural environment (Super and Harkness, 1986; Weisner, 2002). Reflected in the systematic review is the detail that mothers rather than their children have become the focus of research by developmental psychology (Burman, 2017). Discounting the active role that infants have in relationships with multiple caregivers, and the individualized nature of their interactions (Tronick and Beeghly, 2011), while emphasizing the gendered socialization of parenting as something that only women can do (Hays, 1996). The criteria used to measure behaviours and abilities reflecting desired parenting characteristics and a paternalistic approach to research. Mothers are very much the subjects of research, rather than active participants.

## **Conclusions and recommendations**

The evidence presented in this article will help health and social professionals to develop a research-informed awareness of IMH. In working closely with parents, they may recognize and address the roles that cultural values play in parenting research. The subject of IMH is value-laden and practitioners and researchers reflect and inform these values. Drawing upon critical theory or constructivism would help to explore this, better incorporating researcher reflexivity into primary studies of parental influence and knowledge about IMH (Guba and Lincoln, 2008).

Pivotal to infant care and development is the cultural context in which the infant lives (Rogoff, 2003). The realities of caring for infants in differing contexts require further recognition and development of emic approaches, such as research using an ethnographic design that is ecologically positioned (Weisner, 2014). This approach will help practitioners and parents to vocalize what is intuitive and therefore obtain evidence of how they respond to and affect their infant's mental health. Quantitative methods informed by derived etic approaches, for example, in aiding the design of research measurement tools that are recognisable to participants can be useful in identifying patterns among groups of people (Rogoff, 2003). Further development of quantitative methodology that draws upon derived etic approaches would help to address some of the limitations of the research in this review.

This systematic review highlights the lack of contemporary research knowledge available regarding parental perspectives of IMH and the difficulties with research in this area. This is surprising, given the growth of child and adolescent mental health services and a recognition of the impact of adverse childhood experience on mental health across the life-course. Practitioners should be familiar with the dominant research approaches used and the ways in which these influence how mothers and their infants are involved (or not) in the research process. The review highlights the complexity of parenting behaviours and the influence of sociocultural values and beliefs in this regard. Concepts of health and expectations of infant behaviour vary among family groups and individuals. To promote IMH, practitioner knowledge of the importance of the home and wider environmental resources available to families is a good starting point. In helping parents with their infant's mental health, practitioners need to observe the family as an ecological system, with an appreciation of the role the infant plays as part of this. Expansion of research that focuses upon the infant and family within the ecological and cultural context in which they reside will help practitioners to do this.

### **Strengths and limitations of this review**

Multidisciplinary evidence was gathered in a systematic way for this review and as such, the multidisciplinary nature of IMH was acknowledged (Fitzgerald and Barton, 2000). The decision was taken to only include high-quality evidence to strengthen the review and ensure that the results were robust. The result is that several papers were excluded, including grey literature that might have contributed towards an understanding of the question in telling us about the scope and scale of research approaches. The heterogeneity of the literature included in the review has meant that only a thematic analysis of the evidence was possible.

The intention was to explore parental perceptions and utilization of knowledge about their infants' mental health: the dominance of the quantitative approach adopted by higher quality evidence included in this review shows that understanding of the topic is shaped by and limited to measurable aspects of parenting behaviours. As such, it is difficult to draw conclusions regarding how parents perceive and utilize knowledge of their infant's mental health. This systematic review provides the practitioner with a critical insight into the dominant higher

quality research that underpins this area and recommends a greater use of qualitative research designs and methods to extend the nature of the debate.

### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.