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Psycho-educational intervention increases reflective functioning in foster and adoptive parents

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Abstract

It is well established that looked after children are more likely to develop complex behavioural and emotional difficulties that can leave many carers struggling to help and understand the child. This can lead to the breakdown of placements whereby the lack of placement stability leaves the child even more vulnerable. The Family Minds (FM) psycho-educational and interactive programme is a newly developed intervention for groups of foster and adoptive parents. It lasts for nine hours and comprises elements of mentalisation-based family therapy, lectures, group exercises and homework, with the aim that parents will be able to better understand and support their fostered or adopted child through increased reflective functioning. In a study undertaken in Texas we evaluated whether there was a change in the parents' reflective functioning (verbal mentalisation) pre- to post-FM training compared to a comparison group who experienced a 'treatment as usual' intervention comprising four hours of lecture information about trauma and attachment. Using five-minute speech samples pre- and post-training, we coded whether the capacity to think reflectively about oneself and one's child altered in either training group. We found that, unlike the comparison group, parents in the FM group significantly increased their reflective functioning. This outcome was independent of several factors such as the age of the parent, age of the child and time as a carer. The only factor influencing the significant change was the training group in which the parent was placed. These findings suggest that this novel mentalisation-based psycho-educational training programme can successfully increase parents' reflective functioning which, in turn, should enhance and strengthen the understanding and relationship between the foster/adoptive parent and the child and reduce negative outcomes.

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Keywords
Reflective functioning, mentalisation, intervention, looked after children, foster, adoption

Introduction

In England in 2013, just over 68,000 children were reported to be in care, 75% (50,260) of whom were in foster care placements (BAAF, 2013). In the US, 399,546 children were reported to be in care, 47% of whom were in foster care placements (Child Welfare Information Gateway, 2013). In Texas (where this research took place), 30,204 children were under the authority of the state, 17,183 (57%) of them in foster care (Texas Department of Family and Protective Services, 2012). It is widely accepted that for the best outcomes, fostered and adopted children should experience stable and secure placements; that is placements where the foster or adoptive family is able to lay down a foundation and create an environment for a secure attachment to be established. All children who are looked after will face increased vulnerability to emotional and behavioural disorders due to separation from the primary, biological caregiver (Dozier, et al., 2002). Any further experience of loss and separation from attachment figures or disruption in the caregiving environment can be devastating and should be circumvented (Minty, 1999). It has been shown that adoptive parents in particular can struggle with their adopted child resisting praise and love from them and deliberately trying to sabotage the relationship (Selwyn, Wijedasa and Meakings, 2014).

Training and support for parents and carers

Notwithstanding the importance and responsibility of the carer's role, services and support networks available for foster and adoptive parents are limited. The Training, Support and Development (TSD) standards provide a general minimum benchmark of information that parents should know and understand regarding what is expected of them. A few foster and adoptive online and helpline services are available in the UK (e.g. Foster Parent College and FosterLine) and the US (e.g. National Foster Parent Association as well as Foster Parent College). The Attachment and Biobehavioral Catch-up (ABC) intervention – 10 one-hour sessions in the caregiver's home – is available in some areas of the US and directly targets foster children and their caregivers (Dozier, Dozier and Manni, 2002). The aim of ABC is to target the dysregulation of infants and young foster children brought on by the trauma of their attachment issues or disruption as the result of being exposed to a maltreating caregiver before being placed in foster care. Interactions between the caregiver and the child are videotaped; the caregiver and assigned parent coach review the footage and discuss strengths and barriers, which allows the caregiver to learn how to interact in a sensitive manner with their foster child to increase their attachment security (Dozier, Dozier and Manni, 2002). Evaluation of this intervention found that foster and at-risk parents can be taught and coached on how to be sensitive parents and that this can, in turn, affect their children's regulatory and attachment systems in a positive way (Bernard, et al., 2012; Dozier, et al., 2006).

Mentalisation and reflective function

Although attachment is essential for a successful parent–child relationship, the ability to mentalise has also been found to play an important part in the parent–child relationship outcome. Mentalisation is an essential human ability to understand the mental state of oneself and of others. When one can mentalise, one can make behaviours meaningful. Children who can mentalise are more able to understand their own psychological experiences, which can affect their ability to self-monitor, control their impulses and regulate affect[1] (Fonagy and Target, 1997). The term mentalisation is analogous to reflective functioning (RF) and measures the individual's ability to mentalise (thought) and reflect (verbal) about their own mental states and those of another. It is a way of organising and understanding behaviours and can determine individual differences of self-consciousness and responsibility (Fonagy and Target, 1997). Secure attachment patterns in children are most effectively promoted through the parent's capacity to mentalise (Fonagy and Target, 2007; Fonagy, et al., 1991). Parents who lack the capacity to reflect on their own and their child's mental states can deprive him or her of the ability to build a sense of self (Fonagy, et al., 1998). Without this sense of self, children can struggle with social exchanges, boundaries, understanding and a theory of mind (the ability to attribute mental states to oneself and to understand that others have knowledge and desires different from one's own).

Within the population of foster and adoptive parents, the ability to mentalise is especially essential as children in care often experience a tough journey throughout childhood, meeting experiences of loss and separation from the primary caregiving relationship (Dozier, et al., 2002). The parent's inability to adequately reflect upon and mentalise about the mental state of the child, and inability to understand the root causes of the child's difficult behaviour, may encourage the placement to break down (James, et al., 2004). This substantially increases the child's vulnerability to the development of emotional and behavioural disorders of personality (Bowlby, 1988). Frequent moves have been identified as a risk factor associated with the most problematic outcomes for children in care (Fanshel, Finch and Grundy, 1990; Newton, Litrownik and Landsverk, 2000). It is therefore important that fostered and adopted children experience stable and secure placements and carer relationships.

Although not currently available for foster and adoptive parents, there are two mentalisation interventions that focus on developing the RF of biological, often high-risk, parents: Parents First (Goyette-Ewing, et al., 2003) and Minding the Baby (Sadler, Slade and Mayes, 2006). Parents First was a preventive group intervention for parents of infants, toddlers and preschoolers. The developmental information workshops were delivered in practical settings such as schools and day-care environments over a period of 12 weeks. They engaged parents in progressively reflective experiences, family activities and exercises at home with their children. A thorough search of the literature yielded no outcome data, successful or otherwise. However, Arietta Slade continued this work in the form of a different intervention: Minding the Baby (MtB – Sadler, Slade and Mayes, 2006). This preventive intervention was created for young pregnant mothers and their families who were identified as having weak reflective functioning skills. Using the model of Parents First, Slade and colleagues built in more therapeutic encounters so as to contain and mentalise the mother, leading to a more supportive and intensive intervention. The intervention took place every week until the child turned two years old. Although this intervention paces the mother's needs and development, it also depends on developing a stable therapeutic relationship, which is an intensive and challenging task. Sadler and colleagues (2013) evaluated a pilot study of the differences

between MtB and a comparison group of parents who received 'treatment as usual'. At four months, parents in the intervention group had fewer disrupted communications with their infants than the comparison group. The intervention children also had higher rates of secure attachment at 12 months and lower rates of disorganised attachment. Additionally, those parents whose RF was very limited at the start increased their RF significantly in the intervention group compared to the comparison group. In a follow-up study one to three years post-intervention, intervention mothers reported significantly fewer externalising behaviours in their children compared with the comparison group. These findings suggest that MtB improved parent–child relationships and the parents' ability to mentalise their children (Ordway, et al., 2014).

These findings strongly support the notion that mentalisation can be taught and can improve parents' abilities to mentalise and speak reflectively about their own mental states and that of their children. This improvement can lead to positive effects on children's behaviour, emotional stability and relationship with their parent or primary carer. Surprisingly, until recently there were no mentalisation intervention services available for foster and adoptive parents in the UK or the US. Neither were there any services for foster and adoptive parents that allowed multiple families to come together, learn together, discuss together and engage in interactive sessions. Now, a new psycho-educational mentalisation intervention for foster and adoptive parents – Family Minds – has been developed and implemented.

Family Minds

The Family Minds (FM) programme, a new psycho-educational mentalisation-based therapy (MBT) intervention designed for use with groups of foster carers and adoptive parents, consists of nine training hours across three sessions spread out over several weeks. This allows the parents an opportunity to practise their new skills at home, feed back and discuss. The main goal of the FM programme is to educate and influence parents' mentalising. The training is based on the content of mentalisation-based family therapy (MBFT) and includes some educational components of MBT programmes.

Effective mentalisation enables accurate recognition of one's own or another's mental states, and ensures the individual comes into a relationship with an attitude that one's own thinking and feeling can be enhanced and altered by learning about the thoughts and feelings of another (Fonagy and Target, 2007). MBFT posits that improving a parent's understanding of their child will help that child to understand his or her own psychological experiences, increase his or her own ability to express his feelings effectively and better regulate his or her emotions. The ability to mentalise develops within the context of an attachment relationship. Disruptions in this attachment can lead to developmental vulnerabilities that inhibit complex cognitive abilities (Fonagy and Target, 2007). The relationship between attachment and mentalisation is two-way in that mentalising difficulties negatively impact attachment and poor attachment challenges the development of mentalisation (Asen and Fonagy, 2011). Through education and interaction, the FM programme was developed to encourage the use of mentalisation to regulate and understand one's own and other family members' mental states, to encourage parents' sense of competence in helping their children develop the skill of mentalising, to promote therapeutic parent–child interaction and to initiate activities within the family to reinforce mentalising. The programme encourages parents to extend their attachment and developmental knowledge, and includes activities, role-plays

and homework. This combination is designed to increase the parents' ability to mentalise in class and further practise their new skills at home with their children.

The current study

Considering the number of children in care across the world, there is a fundamental need for newly developed, theoretically based, evidence-driven intervention programmes for foster and adoptive parents (Dozier, et al., 2002) but it is equally important that any new interventions are empirically evaluated. This research investigated whether there was an improvement in parents' RF ability after the FM programme as measured through pre- versus post-training speech samples. Scores were compared between the intervention group (those who took part in the FM training programme) and the comparison group (those who undertook non-mentalisation-based training). Three dimensions of RF were assessed: 1) the individual's global RF score; 2) the RF of the self as an individual and as a parent; and 3) the parent's RF of the child.

Method

Design

This is an explorative study using data obtained from the FM programme. The independent variable of the study was the participant group, with two levels: the intervention group and the comparison group. The dependent variable was the RF score of the speech samples, with two levels: pre- and post-intervention RF scores. There were three RF dimensions.

Recruitment

In Texas where the evaluation took place, most carers are recruited and managed through non-profit child placing agencies (CPAs). CPAs exclusively contract with the state to provide services for looked after children and are reimbursed by the state for the services they provide. Child Protective Services (CPS) also recruits and manages a smaller number of foster homes. Parents for this study were recruited from the Central Texas area, using key staff at CPAs and CPS offices in the area surrounding the city of Austin.

Participants

Both groups were advertised as a workshop that included information on attachment and the behaviour of traumatised children. The intervention group also advertised reflective parenting or mentalisation. Both training group classes were offered for free and consisted of between 10 and 20 parents per group. Parents received credit that counted towards their annual training hours and were offered a small incentive of a $25 gift card that was raffled off at the end of each data collection. Training was available to any approved foster carer or adoptive parent, but participation in data collection required that they had at least one fostered or adopted child currently placed in their home. All participants were designated as licensed foster carers; however, a few had gone on to adopt their foster child. At the time of testing seven had an adopted child in their care, of whom two were in the intervention group and five in the comparison group.

The intervention group consisted of 18 foster/adoptive parents (7 males and 11 females) with a mean age of 44 years. The average time spent as a foster/adoptive parent was 56 months.

The average age of the foster/adoptive child was 5 years 10 months and their average time within the foster/adoptive family was 24 months.

The comparison group consisted of 13 foster/adoptive parents (5 males and 8 females) with a mean age of 42 years. The average time spent as a foster/adoptive parent was 30 months. The average age of the foster/adoptive child was 5 years 5 months and their average time within the foster/adoptive family was 39 months.

Training programmes

Intervention group. The intervention group underwent a total of nine training hours designed in three parts, each three hours in length, delivered over three sessions and spread out over several weeks to allow the parents an opportunity to practise their new skills at home and discuss with the group afterwards. The intervention included information on trauma, attachment, children's behaviour, sensitive/reflective parenting and mentalisation. The training included a combination of lectures, group discussions, group exercises and games, role-plays, video examples and homework, with a continual focus on mentalisation and reflection. The five-minute speech samples (FMSS – Magaña-Amato, 1983) were collected before session one and after session three.

Comparison group. The comparison group underwent a total of four training hours in one session. This group was designed to reflect 'treatment as usual', as a typical foster class for this population is one session, three to four hours long. This curriculum consisted of material on trauma, attachment and how trauma influences behaviour. The class included lectures, video examples, group discussion and group exercises. The FMSS were collected before and after the session.

Procedure

Both groups completed an FMSS pre- and post-training about their child. The FMSS is a five-minute recorded monologue in which the respondent is encouraged to talk about a relative, in this study their foster or adoptive child. The parent is invited to speak about whatever comes to mind related to the child in open-ended questions such as 'What is your child like?', 'How do you feel about your child?' and 'Tell me about a problem you had with your child recently and how you dealt with it.' Participants were given an audio recorder and instructions to complete the pre-FMSS with regards to one child. After training, they were given a special phone number to call and leave a voicemail message about the same child, which served as their post-FMSS.

The researchers transcribed and coded the FMSS for every participant, but were blind to which group the speech sample was from and which pre-FMSS was matched to which post-FMSS. This information was only disclosed for the analysis.

Coding

The Expressed Emotion (EE) coding system is often employed for FMSS data and has been successfully used on a number of clinical populations, such as schizophrenic patients (Hahlweg, et al., 1989; Magaña, et al., 1986), bipolar illnesses (Miklowitz, et al., 1988), children with attention deficit hyperactivity disorder (Marshall, et al., 1990) and children with depressive disorder (Asarnow, et al., 1993). However the EE coding system only

classifies relationships into three categories: positive, neutral and negative. Therefore, this coding tool was not suitable to evaluate fully the effectiveness of significant and subtle changes in RF.

Instead, we used the RF coding manual (Fonagy, et al., 1998). This not only assesses the parent's ability to recognise or describe mental states like emotions, thoughts, beliefs and intentions, but also assesses the individual's ability to relate mental states to behaviour within the self and within the other (Dennett, 1987) in their exchanges with and representations of their child. This coding method has been commonly and reliably used in studies involving assessment of the relationship between parent and child (Fonagy and Target, 2005; Meins and Fernyhough, 2012).

Reflective function coding

The RF 11-point coding scale ranges in score from bizarre and anti-reflective (−1; an inability to grasp the mental state of the other or the self), to high (+9; an ability to converse in a dynamic and interpretive manner about their own and the other's subjective experience) (Slade, 2007; see Appendix 1 for full scale).

The first significant turning point is score 4 to score 5, moving from an ability to simply express mental states to an ability to form reflective statements. An RF score of less than 5 would be classed as having potential clinical consequences for the parent and the child. The next significant turning point is score 7, demonstrating consistent and sophisticated RF throughout the speech sample. A high RF ability implies that the individual is able to understand that affects may vary in intensity within one or between two individuals and that they may fluctuate, that affects are not always externally visible, that particular emotional states can trigger other emotional states and that affects contain dynamic and transactional qualities (Fonagy, et al., 1998). An individual who possesses a high RF ability will have a mature internal working model of affects and intentions (Slade, 2005).

Results

One participant was removed due to the unusual (short and showing extreme lack of interest) nature of the speech sample, and suspicion of talking about a different child during the post-FMSS. This gave a final total of 17 intervention and 13 comparison participants.

Participants' speech samples were coded on three aspects: firstly, their reflective RF with regards to themselves; secondly, their RF with regards to their child; and, finally, their global RF. Analyses were conducted separately for all three aspects, however they showed near identical results: if a participant showed a high RF in one aspect, they yielded a high RF in all three aspects. Therefore, we shall only present the global RF data.

Global RF

Intervention group. Just under half (47%) of the participants moved to the next significant level from pre- to post-training speech samples, either from a score 4 or below to a score of 5 or 6, or from a score of 5 or 6 to a score of 7 or above (see Appendix 1 for full coding level details). A further 6% of participants increased two RF levels (from a score of 4 or below to a score of 7 or above). An additional 41% remained within their RF level, of which nearly one-third had already reached at least a level 5. The rest remained in their level below the first significant turning point. Finally, 6% decreased in their RF level.

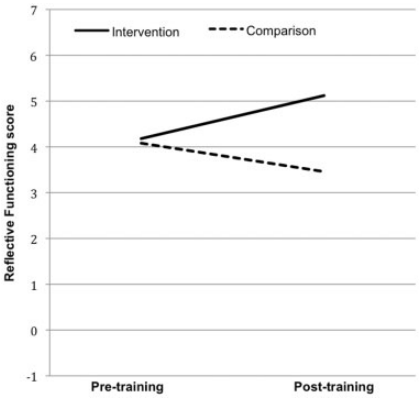

Figure 1. The intervention group significantly increased in their reflective function capacity from pre-training to post-training, unlike the comparison group whose RF capacity decreased.

Using the Mann Whitney U test we found that there was no significant difference between the comparison and intervention groups' pre-training RF mean scores (4.08 and 4.18 respectively): $U = .105$; $p = .837$. However, there was a statistically significant difference between the groups' post-training RF mean scores (comparison $M = 3.46$ and intervention $M = 5.12$): $U = 33.5$; $p = .001$.

Comparison group. None of the participants moved to the next significant RF level. Eighty-five per cent of the participants remained at the same RF level, less than a fifth having reached above a level 4 at the start of the training. The remaining 15% of participants decreased in their capacity for RF.

Due to the small sample size in each group, non-parametric statistics have been used to statistically evaluate the data. Wilcoxon Signed Ranks test showed that training from the FM programme did elicit a statistically significant increase in RF mean scores from pre- to post-training (4.18 to 5.12): $Z = -2.54$; $p = .011$. It also showed that the comparison group RF mean scores did not significantly increase (4.08 to 3.46): $Z = -1.93$; $p = .054$. In fact, the trend (4.08 to 3.46) is towards a significant decline in RF score post-training. See Figure 1 for an illustration of these findings.

Additional factors

A hierarchical multiple regression was conducted to assess the ability of five additional factors (age of parent, age of child, time length as a carer, time the child has been with the carer, pre-training RF score) to predict post-training RF score after controlling for group (comparison and intervention). Group was entered first, explaining .37 (R Square, 37%) of the variance of post-training RF scores. Age of parent, age of child, time as a carer, time the child has been with the carer and pre-training RF score were entered second, explaining an additional .18 (R Square Change, 18%) of the variance. The total variance explained by the model as a whole was .55 (55%), $F(7, 20) = 3.43$; $p = .014$. Group explained 37%, $F(1, 26) = 15.01$; $p = .001$, with a standardised coefficient beta of $-.61$. None of the additional factors made a significant individual contribution.

The trainer

The same person, who has a clinical background and training in mentalisation, taught all classes in both training conditions. All classes were recorded. Two independent raters (blind to condition) used a 13-item fidelity assessment to code 20 audio samples of 15 minutes each, taken at random from both the intervention and comparison sessions. The correlation between the raters was high across the 13 items: median $r = .89$ (range: .53 – 1.00) and, as hoped, the only statistical differences between the delivery and content of the sessions were for the three items concerned with RF (only delivered in the intervention condition): content on RF ($U = 100.00$, $p < .001$), RF exercises ($U = 85.00$, $p < .01$) and helping parents to understand their own emotions ($U = 88.50$, $p < 01$).

Discussion

We evaluated the capability of the new psycho-educational FM programme to increase foster and adoptive parents' RF by comparing FMSS pre- and post-training. Two main findings will be discussed. Firstly, foster and adoptive parents who completed the FM programme significantly increased their RF capacity with regards to themselves and their child; however, the comparison group's mean RF score showed a trend towards decreasing post-training. Secondly, only the group in which the parents were placed (intervention or comparison) affected the post-RF score.

Family Minds training increases RF

Post-training FMSS RF scores showed that the FM intervention group significantly increased in their RF ability – a finding not observed in the comparison group. This suggests that foster and adoptive parents benefited from the interactive psycho-educational, mentalisation-based aspect of the training as opposed to simply learning about signs of, and methods of dealing with, trauma and attachment. This finding adds to work demonstrating that mentalisation-based programmes are an effective method for increasing biological parents' RF capacity (Goyette-Ewing, et al., 2003; Sadler, et al., 2006) and extends previous work showing their effectiveness with foster and adoptive parents. This is the first evaluation of a mentalisation-based programme increasing the RF capacity of foster and adoptive parents. Strikingly, none of the comparison group moved to the next significant RF level post-training, compared to a move of 47% of the intervention group with an additional 6% increasing two significant RF levels. Children whose parents lack the capacity to mentalise are at a high risk of developing disorganised attachment (Dozier, et al., 2002). The significant observed increase in RF suggests that these parents have learned to better reflect upon (mentalise about) the mental state of their fostered or adopted child. In addition, they are now more aware of the relationship between their own mental state and behaviour. This will help them to understand the cause of the child's behaviour and emotions and recognise how one person's feelings or behaviour can impact another.

These results indicate that the acquisition of mentalisation, and therefore the ability to reflect, can be trained and enhanced particularly well in carers who already use mental states non-reflectively or show limited to high RF. However, those with a very limited use of mental states and no RF can also improve. Once able to use mental states, we believe that RF can be enhanced with this intervention. This study highlights the need for an external mentalisation-based intervention that interactively educates the parent on how to

think reflectively about the fostered or adopted child, to understand the child's inner world of emotions and ways of relating, and to effectively regulate the child's overwhelming affects in stress-provoking situations. This can help the child to build a sense of self and promote secure attachment (Fonagy, et al., 1991; Fonagy, et al., 1998; Fonagy and Target, 2007a, 2007b). The parents' increased capacity to mentalise may imply a greater chance of placement success (Fonagy, et al., 1991; James, et al., 2004). These essential skills will go towards making better the relationship between themselves and their child, which in turn will create a more stable and supported situation for the child. Although we believe that a person with no, or limited, RF can improve this skill through psycho-educational intervention, the negative impact a weak RF ability can have on the child–parent relationship needs to be considered. It could be beneficial to incorporate a test of RF – such as in interview or speech samples – into the assessment of new and prospective foster and adoptive parents, and then offer the FM intervention where necessary.

Overall benefit

We wanted to ensure that the FM training worked regardless of the individual. The group in which parents had been placed was the only factor that influenced RF level post-training, explaining 37% of the variance. All other factors had no significant effect on the parents' ability to use RF. The intervention training worked regardless of demographics. Interestingly, even pre-training RF level did not affect post-RF level. This shows that the FM training programme works irrespective of RF starting level.

Participants were not randomised to the two programmes in this study, instead choosing which one to attend. This could have caused a selection bias and should be explored further. However, there were no significant differences between groups pre-intervention. Both sessions were run by the same person, which could also be seen as a limitation. However, this ensured that delivery was consistent across groups and fidelity measures ensured objective delivery. As the implementation of the FM programme increases, training for new session leaders will be issued to ensure consistent delivery. Due to a number of factors, such as the specific population requirements (only foster and adoptive parents) and the limited location (the programme is currently only available in certain areas of Texas), the sample size is small. We hope that with the growth and greater application of this intervention further research can begin to explore larger numbers and more demographics. Although we collected information about education, ethnicity, gender and whether the participant was a foster or adoptive parent, we did not have enough disparity within factors to explore these statistically in this evaluation. Now we know this programme can successfully increase parents' RF, further research should extend the population location and demographics.

Conclusion

It is well established that looked after children are more likely to have social, emotional and behavioural difficulties that can lead to negative outcomes in life. Having a stable, understanding primary caregiver, and one who comprehends why the child behaves the way he or she does, can help lead to better relationships and outcomes for the child. Foster and adoptive parents taking part in the FM programme are able to increase their mentalisation, and therefore RF, about themselves and their child. This is a particularly important skill when parenting a looked after child with attachment and behavioural issues which, if

misunderstood, can lead to placement breakdowns. The FM programme worked regardless of a number of important demographics and regardless of RF starting level. These results suggest that inclusion in this programme could enhance a looked after child's relationship with their parent, which, in turn, increases attachment, security, stability and outcome.

Notes

1. Emotion or subjectively experienced feeling, such as happiness, sadness, fear or anger (Oxford Dictionary of Psychology. 3rd edn., 2012).

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Appendix 1. The reflective function (RF) scale (Fonagy, et al., 1998)

RF level		
-1 *Negative RF*	Anti-reflective; bizarre; hostile; inappropriate 'Why are you asking if I get angry? You're just trying to find bad things against me.'	Negative to limited RF
0		
1 *Absent RF*	Passively evasive; little or no hostility; disavowal explanations 'I don't know. I really couldn't say.'	
2		
3 *Questionable or low RF*	Uses mental state language but not reflectively; superficial; clichéd 'She just wants this and wants that.'	
4		
5 *Definite or ordinary RF*	Uses non-clichéd mental state language reflectively 'I think he felt sad and that's why he started clinging to me.'	
6		
7 *Marked RF*	Sophisticated RF on mental states more than once but not continually; complex; an interactive perspective 'She was so happy and kept cuddling up and kissing me, and that made me happy.'	
8		
9 *Full or exceptional RF*	Full awareness of reflecting on mental states; sophisticated	Moderate to high RF

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