

# Attachment and alexithymia in adolescents with food allergy: A developmental hypothesis

To the Editor:

Recent studies showed that, when compared with healthy peers, adolescents with FA reported higher levels of alexithymia—the inability to identify and describe emotions<sup>1</sup>—and those with higher alexithymia tend to use avoidance as coping strategy over and above other coping strategies such as problem-solving, positive thinking and social support.<sup>2</sup> Moreover, patients reported significantly higher levels of discomfort with closeness, relationships as secondary and attachment avoidance compared with healthy peers.<sup>3</sup> These results have led us to focus on links between attachment and alexithymia patterns in adolescents with FA, as little is known about psychological characteristics and how they might impact outcomes among these patients. Attachment and alexithymia are both related to health/illness behaviour, social support, use of coping strategies and quality of life. An increased understanding of the interplay between these psychological factors can help to provide suggestions for prevention and intervention in food allergy, adopting a multidisciplinary overview of well-being.

Alexithymia is a multifaceted personality construct described as “a lack of words to express emotions”.<sup>4</sup> It is described on a continuum and normally distributed in the general population, where prevalence is about 10%.<sup>4</sup> The core characteristics of alexithymia include difficulty identifying feelings, difficulty describing feelings and externally oriented cognitive style.<sup>4</sup> The validity of the alexithymia construct and its association with several medical illnesses are well documented.<sup>1,2,4</sup>

According to attachment theory, affect regulation and the quality of attachment are closely linked.<sup>5</sup> Through interactions with primary caregivers, infants develop cognitive-motivational patterns of interpersonal relationships that guide affects and behaviour during the lifespan. The attachment system sustains interpersonal actions intended to increase an individual's sense of security, particularly in times of stress or need. It is evolutionarily designed to protect people re-establishing security through contact and comfort from an attachment figure.<sup>5</sup> Individual differences arise in how the attachment system operates.<sup>5,6</sup> Attachment Anxiety (AAn) refers to a pattern of hyperactivation in face of threat, including hypervigilance, worry about being abandoned, persistently seeking proximity and reassurance from others, dysfunctional stress and affect regulation. Attachment Avoidance (AAv) refers to a pattern of deactivation in response to danger including denying attachment needs, minimizing distress, turning attention away and being overly self-reliant.

Attachment security refers to the combination of low AAn and low AAv. It is characterized by a sense of safety and effective affect

regulation, feeling comfortable with closeness and trusting that a partner will be available when needed.<sup>5</sup>

Although the attachment style is considered a quite stable personality trait, chronic disorders represent adverse conditions that may promote a shift towards attachment insecurity, as the persistent disease-related stress may induce patients to massively use affect regulation strategies either hyperactivating or deactivating the attachment system.<sup>3,5</sup>

Alexithymia has been shown to mediate associations between AAn and AAv both and psychological distress, perceived social support and health-related behaviours.<sup>4,7,8</sup>

From an attachment perspective, adolescence is a critical transitional period in which attaining the competence to regulate affect and behaviour independently of primary caregivers is an essential developmental task.<sup>9</sup> It is a period of profound transformations in emotional, cognitive and behavioural systems.<sup>9</sup> Autonomy develops in the context of a close, enduring relationship with parents that should provide a secure base from which the adolescent can explore the wide range of emotional states that arise when he or she is learning to live as a relatively autonomous adult.<sup>9</sup> It may be that a disease such as FA, that requires close supervision from caregivers and that impacts considerably on family's psychosocial well-being,<sup>10</sup> could interfere with this process. Indeed, ensuring the safety of a child with FA can lead to a struggle to balance safety with autonomy, as the patient grows.<sup>10,11</sup>

This study aimed to investigate associations between attachment and alexithymia features among adolescents with FA and specifically to examine whether different attachment characteristics would be associated with different alexithymic deficits. This will allow us to give further light on previous results about alexithymia and attachment in FA, outline the socio-emotional set-up of adolescents with FA and generate developmental hypotheses.

Sixty-nine patients were recruited sequentially at Padua Food Allergy Centre. Inclusion criteria consisted of a medical diagnosis of IgE-mediated FA based on clinical history, positive skin-prick test, in vitro specific-IgE and positive food challenge. Patients who suffered from concomitant non-allergic disease were excluded.

The sample came from Veneto Region and was white. All patients developed FA during early childhood. Most participants (89%) were prescribed with adrenaline autoinjector.

Participants ( $\geq 18$  years old) or parents signed written informed consents.

The Padua University Ethics Committee of Psychological Research approved the research.

**TABLE 1** Distribution of TAS-20 scores and ASQ dimensions among the 69 patients

| Scales                                          | Min   | I Quartile | Median | Mean  | III Quartile | Max   |
|-------------------------------------------------|-------|------------|--------|-------|--------------|-------|
| TAS-20 Difficulty in identifying feelings (DIF) | 7.00  | 13.00      | 17.00  | 16.75 | 21.00        | 32.00 |
| TAS-20 Difficulty in describing feelings (DDF)  | 5.00  | 10.00      | 12.00  | 13.38 | 18.00        | 24.00 |
| TAS-20 Externally oriented thinking (EOT)       | 12.00 | 18.00      | 22.00  | 21.54 | 25.00        | 31.00 |
| TAS-20 Alexithymia Total Score                  | 28.00 | 42.00      | 53.00  | 51.67 | 59.00        | 81.00 |
| ASQ Attachment Avoidance (AAv)                  | 2.06  | 2.89       | 3.16   | 3.15  | 3.42         | 4.05  |
| ASQ Attachment Anxiety (AAn)                    | 1.46  | 2.54       | 3.08   | 3.00  | 3.54         | 4.23  |

**TABLE 2** Spearman's correlation matrix

|     | AAv        | AAn        | Confidence  | Discomfort with Closeness | Relationships as Secondary | Need for Approval | Pre-occupation with Relationships |
|-----|------------|------------|-------------|---------------------------|----------------------------|-------------------|-----------------------------------|
| DIF | <b>.27</b> | <b>.66</b> | <b>-.51</b> | .22                       | .18                        | .55               | .53                               |
| DDF | <b>.29</b> | <b>.62</b> | <b>-.57</b> | <b>.27</b>                | .17                        | .50               | <b>.36</b>                        |
| EOT | .05        | -.07       | -.22        | -.14                      | <b>.24</b>                 | -.03              | -.20                              |
| TOT | <b>.27</b> | <b>.60</b> | <b>-.59</b> | .18                       | <b>.24</b>                 | .50               | <b>.35</b>                        |

In bold correlations significant at 5% level.

Patients completed the Italian version of the Attachment Style Questionnaire (ASQ)<sup>6</sup> and Toronto Alexithymia Scale (TAS-20).<sup>12</sup>

The ASQ is a validated self-report questionnaire assessing attachment orientation in close relationships. The 40 items formed five factor-based scales: Confidence (C); Discomfort with closeness (DC); Relationships as secondary (RS) (to consider achieving things as more important than building relationships); Need for approval (NA); Pre-occupation with relationships (PR); and two dimensions: Attachment Avoidance (AAv) and Attachment Anxiety (AAn).<sup>5</sup>

The TAS-20 is a validated self-rating questionnaire measuring total alexithymia and three core factors: Difficulty in Identifying Feelings (DIF); Difficulty in Describing Feelings (DDF); Externally Oriented Thinking (EOT). It also allows categorizing respondents into three groups: non-alexithymic (total score <51), borderline (51-60) and alexithymic (≥61).

Spearman's rank correlation coefficient was calculated between TAS-20 variables and characteristics of attachment ASQ.

A proportional odds regression model for ordinal data was applied to TAS total score (categorized into 1 = non-alexithymic; 2 = borderline alexithymic; 3 = alexithymic) and included gender, age, AAn and AAv score as independent variables. Results are expressed as odds ratio (OR) and 95% confidence interval (95%CI). Each OR may be interpreted as the effect of the variable on the odds of being in a higher category of the outcome (for total score, the higher the worse) across the entire range of values. Odds proportionality was checked through likelihood ratio test. To assess the impact of gender, age, AAn and AAv score on TAS subscales (continuous score), a seemingly unrelated regression (SUR) system consisting of three linear models with correlated errors was fitted.

Among participants, (female = 40.5%; 13-19 years old; mean age = 15.59; SD = 2.009) 30 (43.5%) resulted below the cut-off on the summative scale for alexithymia (<51); 27 (39.1%) were borderline (51-60), and 12 (17.4%) above the cut-off (>60). Distribution of TAS-20 scores and ASQ dimensions is summarized in Table 1.

Spearman's rho coefficient was highest for correlations between DIF, DDF, TAS-20 total score and AAn (ranging from .60 to .66 and statistically significant). Correlations with EOT were the weakest (Table 2).

The proportional odds regression model suggested significant associations between AAn ( $P < .001$ ), AAv ( $P < .05$ ) and alexithymia. The more the AAn or the AAv increased, the higher the likelihood of being in a higher alexithymia category (per unit increase of AAn OR = 6.82 and 95% CI: 2.5-18.56; per unit increase of AAv OR = 3.59 and 95% CI: 0.96-13.4).

SUR analysis results indicate a significant positive effect of AAn on DIF and DDF, and a significant decrease in the average EOT in females (Table 3).

As showed, 17.4% of participants were alexithymic and 39.1% were borderline alexithymic. Results are comparable with our previous studies,<sup>1,2</sup> confirming a quite high prevalence of alexithymic trait in young patients with FA.

Alexithymia was associated with AAn and, even if less strongly, with AAv. Although a causal relationship cannot be demonstrated, this is in line with one of the aetiological explanatory models of alexithymia, which assumes that insecure attachment style has a negative influence on the emotional regulation capacity.<sup>4,8</sup> The attachment system provides the context in which emotional regulation strategies are developed.<sup>9</sup> Stress, anxiety and fear are common concerns among patients and families living with FA.<sup>10</sup> FA severity, maternal

**TABLE 3** Results of SUR regression models for subscales

|        | DDF    |               |         | DIF    |               |         | EOT    |                |         |
|--------|--------|---------------|---------|--------|---------------|---------|--------|----------------|---------|
|        | Coeff. | 95% CI        | P-value | Coeff. | 95% CI        | P-value | Coeff. | 95% CI         | P-value |
| Age    | -0.20  | -0.72 to 0.31 | .44     | 0.02   | -0.56 to 0.61 | .93     | -0.22  | -0.74 to 0.30  | .41     |
| Gender | -0.16  | -2.33 to 2.01 | .88     | 0.81   | -1.67 to 3.28 | .52     | -3.14  | -5.35 to -0.93 | .01     |
| AAv    | 1.65   | -0.76 to 4.07 | .18     | 1.04   | -1.71 to 3.79 | .45     | 0.67   | -1.79 to 3.12  | .59     |
| AAn    | 4.23   | 2.60 to 5.86  | <.001   | 4.98   | 3.12 to 6.84  | <.001   | 0.29   | -1.36 to 1.95  | .72     |

In italic statistically significant results.

psychological distress and overprotection have been significantly associated with maternal reports of poorer child functioning and/or QoL.<sup>13</sup> Furthermore, higher alexithymia, especially DIF and DDF subscales, has been associated with retrospective reports of parental overprotection.<sup>7</sup> It may be that the presence of overprotective parents is a specific attachment element that impedes emotional regulation at young age. FA impacts directly on children's normal trajectory of psychological development in both an age- and disease-specific manner.<sup>11</sup> Adolescence is the developmental stage when children are beginning to gain autonomy and self-belief in their ability to control internal and external events in their lives.<sup>9,11</sup> In patients with FA, this struggle takes place against a backdrop of anxiety on the part of both children and parents.<sup>11</sup> Uncertainty, extreme vigilance and lack of personal control are a central part of growing up with FA.<sup>11</sup> Lebovidge et al<sup>14</sup> found that anxious coping and separation anxiety were significantly higher than norms, among children with FA. Patients may exhibit increased vigilance and fears about going places without parents. These behaviours may reflect adaptive strategies for patients with FA that can become excessive for some children.<sup>14</sup>

We found that attachment features are differently related to separate facets of alexithymia. There is a significant negative association between Confidence and all the TAS-20 subscales except for EOT. The more the adolescent is confident, the less alexithymic. EOT is correlated (positively) only with Relationships as Secondary, one of the two factors related to AAv. It is realistic that an individual oriented to concrete and external aspects might be more oriented to achieving things than building relationships. The other factor, Discomfort with Closeness, is correlated (positively) only with DDF. Need for Approval and Pre-occupation with Relationships, the two factors theoretically related to AAn, are both positively correlated with DIF, DDF and TAS-20 total score. This is consistent with previous studies assessing adolescents using the same instruments.<sup>8,15</sup> It is reasonable to think that AAn, rather than AAv, may predict facets of alexithymia related to difficulty in identifying and describing feelings, given that the over-activation of emotional experiences associated with anxiety is likely to interfere with individuals accuracy in interpreting what specific emotional reactions mean.<sup>15</sup> AAn may reflect the separation-individuation process, and the anxiety and uncertainty that accompany this struggle for self-definition.<sup>15</sup> It may be that the over-activation of emotional experiences due to the anxiety of being separated from support figures causes inaccuracy in describing and identifying emotions.<sup>15</sup>

Regarding difference between boys and girls in EOT, it confirms previous results showing that this characteristic is more pronounced among males.<sup>8</sup>

Alexithymia and insecure attachment are related to maladaptive coping strategies and limited ability to think about and use emotions to cope effectively with stressful situations.<sup>2-4,8</sup> Although this study does not allow addressing the direction of the association among FA, attachment and alexithymia, it adds to an emerging evidence base around the hypothesis that distress and psychosocial burden imposed by allergic disorders might adversely impact on attitudes to close interpersonal relationships and emotion regulation in patients.<sup>1-3,10</sup> On the other hand, we have also to consider that insecure attachment and emotional difficulties might impact on clinical outcomes, influencing health behaviour and biological responses.<sup>4</sup> Moreover, it would be crucial to further investigate how diseases-related pathways might cross developmental trajectories. In addition to the cross-sectional design, the research is also limited using self-report instruments. Further, longitudinal, multidimensional studies, in larger samples, could address those limitations and investigate the links between attachment and alexithymia in relation to other clinical factors in patients with FA.

In conclusion, anxious and avoidant attachment dimensions are differentially related to the facets of alexithymia in adolescents with FA. In particular, findings concerning AAn may reflect adolescent's conflict for autonomy and the impact on affect regulation system.

Clinicians should support adolescents with FA and their caregivers in finding a balance among safety, autonomy and psychosocial well-being. Feedback about the specific role of affect regulation may help in exploring more adaptive strategies. Particular attention might be given to the transition between childhood and adolescence, promoting in young patients positive coping strategies, self-efficacy and effective use of support systems. Coping and communication skills trainings, and mindfulness techniques, might be particularly useful.

## AUTHOR CONTRIBUTIONS

All the mentioned authors read and approved the manuscript and agree to the submission of the manuscript to the Journal. *Laura Polloni* contributed to the conception and design of the study, acquisition and interpretation of the data and preparation of the manuscript. She approved the final version of the manuscript. *Ileana Baldi* contributed to the design of the study, analysis and interpretation

of the data and preparation of the manuscript. She approved the final version of the manuscript. *Emilia Ferruzza* contributed to the conception and design of the study, interpretation of the data and critical revision of the manuscript. She approved the final version of the manuscript. *Francesca Lazzarotto* contributed to the design of the study, interpretation of the data and preparation of the manuscript. She approved the final version of the manuscript. *Roberta Bonaguro* contributed to the design of the study, interpretation of the data and preparation of the manuscript. She approved the final version of the manuscript. *Alice Toniolo* contributed to the design of the study, interpretation of the data and preparation of the manuscript. She approved the final version of the manuscript. *Nicolò Celegato* contributed to the design of the study, interpretation of the data and preparation of the manuscript. He approved the final version of the manuscript. *Dario Gregori* contributed to the analysis and interpretation of the data and preparation of the manuscript. He approved the final version of the manuscript. *Antonella Muraro* contributed to the conception of the study, interpretation of the data and critical revision of the manuscript. She approved the final version of the manuscript.

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