Relationships among shyness, social competence, peer relations, and theory of mind among pre-adolescents

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Abstract The present study examined the relationships between shyness, a number of personal and interpersonal variables (i.e. social skills, self-esteem, attachment style, advanced Theory of Mind skills and peer relations) in a sample of 243 Greek pre-adolescents. Participants completed self-reports of the variables. Results indicated that females scored higher than males in all social skills, as well as on shyness. Males, on the other hand, reported more peer relations. Securely attached children reported more peer relationships and achieved higher scores in theory of mind tasks, than those insecurely attached, whereas the latter had higher scores in shyness. Children who reported few peer relations were more likely to obtain higher scores in shyness. Shyness was predicted by gender (girl), poor peer relations and insecure attachment. Results are discussed in terms of their implications for practice.

Keywords Shyness · Advanced ToM · Peer relations · Attachment · Social skills · Self-esteem · Pre-adolescents

1 Introduction

Shyness in children has been a prolific research topic (for a comprehensive review see Rubin et al. 2009). Empirical evidence suggests that shy children are more likely to face problems in their social interactions with peers and adults and could be at risk for a variety of personal and academic adjustment problems (Hughes and Coplan 2010; Rubin et al. 2009). Shyness can be explained in two ways. One is the common sense description of the signs and symptoms that are present in the person,

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whereas the other is the explanation of what is happening in the person who suffers shyness. The goal of the present study was to explore the links between shyness and a number of variables, both personal (i.e. self-esteem, social understanding, and attachment style), and social (social skills, peer relations) implicated in its manifestation among pre-adolescents. Understanding the correlates and contributing factors in shyness has important implications for the identification of children experiencing internalizing problems and difficulties in peer relations, which during preadolescence become increasingly complex and require adequate social awareness and behavior (Lerner and Steinberg 2009). Furthermore, reserved children could be at risk for school challenges if they do not energetically engage in interactive classroom learning activities (Cameron 2009), and therefore intervention programs designed to ameliorate the school adjustment problems associated with shyness should be benefited by the outcomes of the present investigation.

Shyness is a form of excessive self-focus, a preoccupation with one's thoughts, feelings, and physical reactions, which may vary from mild social awkwardness to totally inhibiting social phobia (Henderson et al. 2001). Shy individuals are characterized by a "discomfort and/or inhibition in interpersonal situations that interferes with pursuing interpersonal or professional goals" (Henderson et al. 2001, p. 1522). Nevertheless, although shyness is not a clinically defined behavioral, social or emotional disorder, its persistence seems to be associated with a series of negative outcomes in children, such as low self-esteem, loneliness, and negative affect (Findlay et al. 2009).

2 Shyness and schooling

According to Coplan and Arbeau (2008), the classroom setting may be particularly stressful for shy children, in that the large peer group and the academic demands for verbal participation may serve to intensify their feelings of social fear and self-consciousness. Shyness has been directly linked to differences in academic adjustment, including lower classroom engagement and achievement (Hughes and Coplan 2010). Coplan and Evans (2009) suggested several mechanisms that may account for the association between shyness and academic achievement. For example, shy children, because of their lack of participation in classroom activities, may be perceived as having underdeveloped academic skills. Furthermore, since shy children are likely to speak and volunteer to participate less in class, they may be perceived by their teachers as not understanding the course material or not knowing the correct answers. Finally, performance anxiety as well as their inability to concentrate in the classroom because of the increased self-consciousness, may also account for their inability to academically engage during classroom activities.

As Ladd (2003) argues, children's adjustment in the school context is a result of the interplay between internal (i.e. children's characteristics such as shyness) and external factors (i.e. those of the social context such as peer relations). Therefore, a child who is reserved and socially withdrawn has a greater likelihood of becoming particularly susceptible to the effects of certain experiences (i.e. peer relationships), such as forming negative self-views (low self-esteem), and alter the way s/he

cognitively processes information about social interactions (i.e. mentalizing). Moreover, since interpersonal interactions provide unique opportunities for enhancing children's social and cognitive competence, socially withdrawn children's negative interpersonal experiences may reinforce their pre-existing characteristics (i.e. shyness). Therefore, the examination of the potential factors that could be implicated in the prediction of shyness is of primary importance.

3 Shyness, peer relations and theory of mind

Among the most important consequences of shyness is peer rejection and neglect which can also be risk factors for the manifestation and stabilization of shyness (Rubin and Coplan 2004). An individual's ability to socialize with peers refers to social competence and includes both efficient social understanding, as well as sensitivity to peer communication (Rose-Krasnor 1997). Social understanding is an essential Theory of Mind (ToM) skill which has been linked to children's socio-cognitive development (Sundqvist and Rönnerberg 2010). It refers to an individual's ability to understand others' mental states, such as desires, beliefs, and emotions, which may determine behaviour (Colonna et al. 2010). Children begin to develop a ToM at the age of four (Wellman et al. 2001), whereas at the age of six this ability becomes more elaborate (Perner and Wimmer 1985) and appears to be necessary for the understanding of complex mental states like irony (Happé 1994). A prolonged development of higher order ToM has been found at about 8–10 years when children begin to understand social faux pas (i.e. naturalistic mental state reasoning involved in unintentional insults). This is a reliable way to assess social understanding in everyday social interactions, because they combine social context's facts, emotional situations and cognitive representations (Baron-Cohen et al. 1999).

The ability to attribute mental states makes children capable of understanding multiple social perceptions in order to interact effectively. The relationship between ToM abilities and social behavior (Suway et al. 2012) is bidirectional in that it is within the context of children's social interactions where social understanding is constructed, while simultaneously one's social understanding can impact one's social behavior (Banerjee et al. 2011). Bosacki and Astington (1999) found that children with high social understanding (i.e. ToM) were likely to be more socially competent.

Shy children usually feel uncomfortable being surrounded by their peers, due to their excessive concern that their behaviour will be negatively evaluated, and therefore are less likely to interact with them (Younger et al. 2008). They tend to belong to those with the most severe performance in more advanced ToM abilities, such as the understanding of faux pas situations (Banerjee and Henderson 2001). Furthermore, extremely shy children experience specific socio-cognitive difficulties, such as understanding the links between emotions, intentions, and beliefs in social situations (Banerjee and Henderson 2001). Thus, it is possible that children with this temperament may have little chance to acquire the necessary skills required for adequate ToM development (Suway et al. 2012). According to Broeren and Muris (2009) higher levels of ToM are associated with lower levels of shyness. This

underperformance of shy children in faux pas tasks may be related to negative peer experiences. The relationship between peer rejection and faux pas understanding seems to be bi-directional, as peer rejection predicts poor faux pas understanding in younger children and poor faux pas understanding predicts peer rejection in older children (Mewhort-Buist and Nilsen 2013). Banerjee et al. (2011) found that peer rejection at the age of 7–10 years was associated with lower performance in faux pas tasks a year later, a time period in which the understanding of faux pas continues to develop.

4 Shyness and attachment

The construction of children's cognitive-affective structures of the world, self and others are the result of early social/emotional relationships, which refer to the affectionate connection that the infant develops with the primary caregiver over the first year of life, the *attachment* (Bowlby 1969/1978). These early experiences constitute an internal working model which affects the quality of later relationships by providing individuals with mental representations of self and others (Kennedy and Kennedy 2004). Securely attached children are characterized by better social and behavioral competence, are more effective in cognitive functioning and are less likely to display behavior problems compared to those who are insecurely attached (Suess et al. 1992). They also interact more positively with both peers and adults, are more satisfied with their interpersonal relationships, and show greater trust in others (Larose and Bernier 2001). On the other hand, insecurely attached children are more likely to display both internalizing and externalizing behavior problems (Kennedy and Kennedy 2004).

5 Shyness and gender

Shyness has also been found to be a function of gender. So far, although research evidence is rather inconsistent, recent research suggests that girls are described as slightly shyer compared to boys from early childhood until adolescence (Crozier 1995; Dell'Osso et al. 2003; Spooner et al. 2005), whereas boys seem to be more sensitive to peer exclusion and its effects than shy girls (Kingsbury et al. 2013).

6 The present study

The present cross-sectional correlational study examined the role of both personal (self-esteem, social understanding, and attachment style) and social (social skills, peer relations) factors associated with the prediction of shyness among pre-adolescents. One of the most important aspects of the present research is that it concurrently considers the role of students' individual characteristics, while also taking into consideration students' interpersonal relations as well as their social understanding (i.e. ToM) in the prediction of shyness.

It is well documented that the peer context in early, middle, and late childhood provides important opportunities for making advances in empathy and perspective-taking. Shy children have difficulties in creating and maintaining healthy peer relations (Kingsbury et al. 2013), tend to blame themselves for the negative interactions with their peers, and are reluctant to assert their rights. Moreover, they are likely to have low self-esteem. There is also research suggesting that shy children are more likely to underperform in advanced ToM tasks, such as the understanding of faux pas situations (Banerjee and Henderson 2001), whereas higher levels of ToM are associated with lower levels of shyness (Broeren and Muris 2009). This underperformance may be related to negative peer experiences, since shy children are often socially excluded, and as a result they may miss out on important social experiences compared to non-shy children (Suway et al. 2012). Thus, peer relationships, as a component of social competence, seem to provide increased opportunities to learn about the relation between thinking and behavior (Walker 2005), whereas better social understanding is associated with more positive interpersonal relationships and interactions. During early adolescence, major physical, cognitive, and socio-emotional changes emerge that render pre-adolescents more self-conscious (Steinberg and Morris 2001). Thus, the current study targets early adolescents who become increasingly able to develop more complex peer relationships and interactions that require adequate social awareness and behavior (Lerner and Steinberg 2009).

Drawing upon the extant theoretical and empirical literature presented in the previous pages, it was hypothesized that: Girls will report more shyness and more social skills than boys (H1). Securely attached children will have better relationships with their peers, will endorse fewer shy behaviors, will be more socially skilled and have greater social understanding than insecurely attached ones (H2). Shyness levels will differentiate students' scores in social skills, self-esteem, as well as their performance in ToM tasks, in that low shyness will be associated with better social skills, higher self-esteem and better ToM scores than high shyness (H3). Perceived peer relations will be associated with shyness, with those who endorsed more shy behaviors reporting less peer relations (H4). Finally, shyness will be predicted by gender, peer relations, social skills and performance in ToM tasks, but not by self-esteem (H5).

7 Methods

7.1 Participants

A convenience sample of 243 pre-adolescents, drawn from 2 urban public upper elementary schools from the region of Drama, Eastern Macedonia, Greece, participated in the study. In terms of gender, 116 were boys and 125 girls; 2 had missing gender data. Regarding the age of the participants, 82 (33.7 %) were 10 yrs old, 109 (44.9 %) 11 and 51 (21.4 %) were 12 years old. One hundred and five students were 5th graders and 108 were 6th graders.

7.2 Materials

The measures used in the study were translated from English to Greek by the first author. They were back-translated into English to ensure the accuracy of the translation. The original scoring system for the translated versions was maintained. Finally, the questionnaires were pilot tested in samples of pre-adolescents to assess item comprehensibility and duration of administration.

The construct validity of the scales was examined using Confirmatory Factor Analysis (CFA) with Mplus version 6.1 (Muthén and Muthén 2010) (Maximum Likelihood estimation method; Satorra–Bentler scaled Chi square test for non-normal data). A number of fit indexes were used to evaluate the tested models (e.g. CFI, TLI, RMSEA, SRMR), as well as the Chi square to degrees of freedom ratio (Table 1). Factor loadings were assessed for statistical significance at the $p < .01$ level. All participants were used in the analyses. The internal consistency of all measures was assessed using Cronbach's alpha coefficient.

7.2.1 Shyness

Study participants completed the 26-item Children's Shyness Questionnaire (CSQ, Crozier 1995), which captures the emotional (e.g. I feel nervous when I am with people) and behavioral (e.g. I am usually quiet when I am with others) aspects of shyness that children experience in both familiar and unfamiliar settings. Each item had a 0–3 response range (0 = not true of me at all, 3 = extremely true of me). The CSQ has demonstrated strong psychometric properties in previous research (e.g. Findlay et al. 2009). The internal consistency of this scale was acceptable in both the Italian ($\alpha = .80$) and Canadian samples ($\alpha = .75$). Cronbach's alpha coefficient for the total scale was .76.

7.2.2 Social skills

The child version of the Social Skills Rating System (SSRS-C; Gresham and Elliot 1990) measured children's social skills. The SSRS-C consists of four 10-item subscales, rated on a 3-point frequency scale (0 = never, 2 = often). Six items load on two factors, therefore the total scale consists of 34 items with the total score ranging between 0 and 80. The subscales and some representative items are: Cooperation, which includes behaviors such as helping others, sharing, and following rules (e.g. I follow the teacher's direction), Assertion, which includes behaviors that require initiation, such as introducing oneself and asking questions (e.g. I start talks with class members), Empathy, which includes behaviors that reflect concern and respect for others' feelings and viewpoints (e.g. I feel sorry for others when bad things happen to them), and Self-Control, which consists of behaviors that require children to respond appropriately to others' actions (e.g. I ignore other children when they tease me or call me names). It should be noted that the Empathy subscale is unique to the child's version.

In terms of the scale's factor structure, Van der Oord et al. (2005) found two factors labeled "Assertion/Empathy" and "Cooperation/Self-control". Diperna and Volpe (2005) found relatively low alpha coefficients for all four subscales ranging

Table 1 Fit statistics for confirmatory factor analytic models

Scale	Model	χ^2	df	χ^2/df	CFI	TLI	WRMR	RMSEA (90 % CI)
SSRS	Correlated 4-factor	903.734	510	1.77	.91	.90	.094	.048 (.000–.078)
SPPC	Correlated 2-factor	37.528	25	1.50	.98	.98	.072	.026 (.018–.033)
CSQ	Single factor	367.675	228	1.61	.96	.95	.082	.060 (.048–.071)

SSRS Social skills rating system, SPPC self-perception profile for children, CSQ Children's Shyness Questionnaire

from .56 to .72. However, the social skills total scale alpha was high at .86. For the present study alphas were as follows: Cooperation = .63, Empathy = .61, Self-control = .59, and Assertion = .52. The total scale alpha was .83.

7.2.3 Peer relations and self-esteem

Two subscales of the Greek version of the Harter's Self-Perception Profile for Children (Makri-Botsari 2001) were used to measure participants' perceived peer relations and self-esteem consisting of 5 items each. The scale is standardized in a national sample of 454 students attending the three upper elementary school grades. Each item is scored on a 4-point forced-choice format following the procedure utilized by Harter (1985). Internal reliabilities, using the Cronbach's alpha coefficient, were: .74, for Peer Relations, and .62, for Self-esteem.

7.2.4 Attachment

The Attachment Questionnaire for Children (AQ-C; Kokkinos 2007; Muris et al. 2000) was used to measure students' self-reported perceptions of close relationships, based on the assumption that attachment style, to a considerable extent, defines affectionate relationships that can be inferred from children's perceptions of such relationships. It is an adaptation of Hazan and Shaver's (1987) instrument for measuring the three basic attachment patterns (secure, avoidant, ambivalent) in adults for use with children and adolescents. Convergent validity studies with children and adolescents (e.g. Brown and Whiteside 2008; Muris et al. 2000) showed that those who classified themselves as securely attached scored significantly lower on anxiety and depression, than those who classified themselves as insecurely attached.

7.2.5 Theory of mind

Two first and two second order false belief tasks were used, along with two faux pas and two strange story scenarios. All selected stories used were checked for cultural and age appropriateness.

7.2.6 First order false beliefs

The "unexpected transfer" test of Maxi and the chocolate (Wimmer and Perner 1983) as well as the Deceptive Box task (Perner et al. 1989) were used to assess

children's first order false beliefs. Children who correctly answered all questions (i.e. belief, memory, and reality) were scored 1, otherwise they were scored 0.

7.2.7 *Second order false beliefs*

Second order false beliefs were assessed by two short stories developed by Sutton et al. (1999): The *emotion story* assesses the understanding of the kind of emotion that is appropriate in a specific situation. Children were presented with drawings of faces representing different emotions (happiness, sadness, anger, and a neutral face). The *cognitive story* assesses the ability to understand one person's belief about a belief attributed to another person. Each story was followed by a belief question, a justification question referencing the mental states or emotions, and a control reality question based on the content of the story to verify that the child understood it. Moreover, in the cognitive story a memory control question as well as an inference question were included.

For the both stories a correct answer (2 points) included both the identification of the appropriate emotion/mental state and the reference to the intention/wish of the main character to hide his/her own real emotion to the other characters, or if the child referred to the mental state, thoughts, or beliefs of the characters. Zero points were assigned to an incorrect response, whereas 1 point was given to the answer with no reference to the real emotion/mental state of the character.

7.2.8 *Faux pas*

Two faux pas stories assessed advanced ToM (Baron-Cohen et al. 1999). Four questions followed the presentation of the stories: *Detection, identification, comprehension, and false belief*. The questions were presented in a fixed order after each story and correspond to those listed in Baron-Cohen et al. (1999), with the exception that forced-choice response options were presented to the children. One story involved a male character making the faux pas and the second involved a female character making the faux pas. Scoring was consistent with Baron-Cohen et al. (1999) guidelines, in that children had to answer all questions for a story correctly in order to pass that story (scoring 1 point). A "no" answer to the first question for a story will get 0 points for that whole story. Thus, correct answers to all 8 questions in the task would lead to a faux pas total score of 2 points (one for each story).

7.2.9 *Strange stories*

Strange stories provide a means of testing advanced mentalizing ability suitable for children (Happe 1994; White et al. 2009). Children were provided with 2 short stories and were asked to explain why a character says something that is not literally true. The children were presented with the stories followed by one question for each story about its content. A correct answer (2 points) included reference to the mental state, while 1 point was assigned to the answer with reference to facts or traits with no reference to others' thoughts or feelings. Finally, zero points were ascribed to an

answer that made reference to general, nonspecific information or irrelevant or incorrect facts or feelings.

7.2.10 Student characteristics

Each respondent had to provide information about gender, age, and grade level.

8 Procedure

Participants were approached after personal communication of the first author with the school principals who were provided with explanations about the purpose and the procedure of the study. Students who did not present any reading difficulties, according to the class teacher evaluations, were provided with parental consent forms and were asked to return them only if their parents did not wish them to participate in the project. The voluntary basis of participation was also stressed to the students. Only five students denied participation.

All testing was performed by the last two authors. Children participated in two testing sessions: Session 1 was conducted collectively in the classroom and it lasted approximately 20 min., while Session 2 was conducted individually in a quiet room at school and it lasted 15–20 min. In the collective session, the experimenters administered the questionnaires assessing shyness, social skills, peer relations, and self-esteem. The ToM interviews were conducted in December and January, 2013. Each child was individually interviewed in a quiet room in the school by a researcher reading the stories out loud. To help with the comprehension of the stories, each story had been written on a separate card that the child was invited to read after the researcher had read it and before answering the task questions. For each story, children were asked to indicate verbally (by saying out loud) and nonverbally (by pointing at drawn facial expressions) how the protagonist would feel, and to describe why. The order of the stories was counterbalanced across participants to control for order effects. Interviews were coded on paper to facilitate the scoring procedure. For each child the two testing sessions took place no later than 2 weeks from each other.

In the present study only those participants who were successful in the completion of at least one or both first and second-order false-belief tasks were included in the analyses, that is a total of 177 participants (78 males, 98 females; one had missing gender data). The statistical analyses of the data were conducted using the IBM SPSS Statistics 21.

9 Results

9.1 Descriptive statistics

Mean and standard deviations for the 177 participants for each scale are shown in Table 2.

Table 2 Means, standard deviations, range and correlations between shyness, self-esteem, peer relations, social skills and theory of mind (N = 177)

	M	SD	Range	1	2	3	4	5	6	7	8
1. Shyness	.87	.34	0–2								
2. Self-esteem	3.21	.53	1–4	–.15							
3. Peer relations	3.11	.56	1–4	–.28**	.60**						
4. Assertion	1.32	.26	0–2	–.10	.39**	.39**					
5. Empathy	1.56	.28	0–2	.04	.18**	.13	.46**				
6. Self-control	1.22	.29	0–2	–.06	.27**	.25**	.69**	.48**			
7. Cooperation	1.52	.30	0–2	.12	.24**	.13	.60**	.60**	.54**		
8. Strange stories	.82	.26	0–1	–.02	.05	–.03	–.02	.09	–.01	.03	
9. Faux pas	.72	.35	0–1	–.18*	.06	.05	.11	.11	.17*	.07	.23**

* $p < .05$; ** $p < .01$

9.2 Group differences

9.2.1 Gender

One way ANOVAs showed a significant effect of gender on all variables but self-esteem, strange stories, and faux pas (H1). Specifically, females scored higher than males in all social skills dimensions, namely assertion, $F(1,175) = 5.06$, $p < .05$, empathy, $F(1,175) = 18.06$, $p < .001$, self-control, $F(1,175) = 4.66$, $p < .05$, and cooperation, $F(1,175) = 32.07$, $p < .05$, as well as on shyness, $F(1,175) = 17.07$, $p < .001$. Males, on the other hand, scored higher on peer relations, $F(1,175) = 5.16$, $p < .05$. It should be noted, that although the ANOVAs showed significant mean gender differences, the effect sizes ranged from small to medium (range .03–.16).

9.2.2 Attachment

The number of children who identified themselves as securely and insecurely (avoidant or ambivalent) attached was 121 (68.4 %; 56 boys and 65 girls) and 48 (29.7 %; 18 boys and 30 girls), respectively (8 students did not report their attachment style). To examine the effects of attachment style on children's shyness, social skills, self-esteem, peer relations, and ToM scores (H2), a series of ANOVAs was conducted. Results revealed significant effects of attachment style for peer relations, $F(1,169) = 19.68$, $p < .001$, faux pas, $F(1,166) = 5.72$, $p < .05$, and shyness, $F(1,169) = 16.51$, $p < .001$. In the first two cases, securely attached children reported more peer relationships and achieved higher scores in faux pas than those insecurely attached, whereas the latter had higher scores in shyness. It should be noted that effect sizes varied from small to medium (range .03–.11).

9.2.3 Shyness

Students were classified into two groups based on their total shyness score. Scores falling one standard deviation above or below the mean were indicative of high and low shyness respectively. Sixty-six participants were identified—31 (47 %) with low and 35 (53 %) with high shyness. Those students who scored around the mean were excluded from the analyses. Finally, low shyness students scored higher compared to their high shyness counterparts in peer relations, $F(1,65) = 10.17$, $p < .01$, ($\eta^2 = .14$), and faux pas, $F(1,64) = 5.85$, $p < .05$, ($\eta^2 = .09$) (H3).

9.3 Correlation analysis

Pearson correlations were computed to assess the relationship between shyness, social skills, self-esteem, peer relations and ToM scores (H4). Shyness had significant negative correlations with peer relations ($-.28$), and faux pas scores ($-.18$). No significant correlations were found between shyness and social skills and self-esteem (Table 2).

9.4 Regression analysis

A six-step hierarchical stepwise multiple regression was run to determine the extent to which shyness can be predicted by gender (dummy), attachment style (dummy), peer relations, self-esteem, social skills, and ToM scores (strange stories, and faux pas) (H5). Variable selection was conducted using a combination of theory-based and statistically recommended procedures. Sets of variables were entered into the analysis in a predetermined order informed by their theoretical significance. Thus, ToM scores were entered in the model last in order to evaluate their relative contribution once the effects of attachment, self-esteem, peer relations, and social skills were accounted for. It should be noted, however, that given the cross sectional nature of the data, the findings of the regression analyses simply confirm the presence of shared variance among the sets of predictors rather than a meaningful ordering of effects.

Shyness was predicted by gender (girls; $\beta = .25$, $p < .01$), insecure attachment ($\beta = .22$, $p < .01$), and low peer relations ($\beta = -.16$, $p < .05$). Significant predictors accounted for 16 % of the total variance, with gender explaining the highest percentage (8 %).

10 Discussion

The purpose of the present study was to examine the association between personal (self-esteem, social understanding and attachment style) and social (social skills, and peer relations) factors and shyness in a sample of Greek pre-adolescents. One of the most important aspects of this research is that it investigated the way the socio-cognitive ability of mentalizing (i.e. ToM) is implicated in the prediction of shyness.

Gender was expected to differentiate shyness, social skills and empathy (H1). Consistent with H1, girls reported higher shyness compared to boys, a finding which confirms contemporary research evidence (Crozier 1995; Dell’Osso et al. 2003; Spooner et al. 2005). Perhaps, shyness is less acceptable for boys than for girls because it contrasts with the image of boys as more dominant and assertive, and therefore may have implications for how girls and boys behave in the classroom setting (Rubin et al. 2009). As Rubin et al. (2009) explained in their review of literature, if shyness in boys is not socially accepted, boys may not be receiving necessary support to outweigh their shyness in the classroom, while if shyness in girls is more acceptable, girls may receive more attention and support in reducing shyness than shy boys do. Significant effects of gender were also found for social skills (empathy, self-control, assertion, cooperation) and peer relations. Girls were found to be more socially skilled, whereas boys reported better peer relations. Indeed, existing evidence suggests that girls are more likely to be more socially skilled in terms of cooperation and social interaction than boys (Gomes and Pereira 2014). With regards to gender differences in peer relations, there are studies indicating that pre-adolescent girls are more concerned with peer evaluation and are more interested in their peers’ approval, compared to boys (e.g. Rose and Rudolph 2006). It could be that high levels of social-evaluative concerns as well as the need for approval may lead to problems in peer relations, which in turn could negatively influence their emotional adjustment. Moreover, girls’ higher scores in shyness may be attributed to their social-evaluative concerns. Further research, however, is needed to elucidate this finding.

Regarding students’ attachment style, it was expected that securely attached children would have better relationships with their peers than insecurely attached children (H2). Indeed, the former had higher scores in peer relationships compared to the insecurely attached, confirming that attachment security is associated with higher peer acceptance, more reciprocated friendships, more satisfying interpersonal relationships, and greater trust in others (Larose and Bernier 2001).

Insecurely attached children endorsed more shy behaviors (H2). Despite the lack of empirical evidence, Bohlin et al. (2005) suggested that the effect of attachment is larger for children who were inhibited as infants. Booth-LaForce and Oxford (2008) also demonstrated that the pathway to increasing social withdrawal is related to less secure child-mother attachment and found that the stable withdrawn children exhibit higher scores on lack of security. As far as ToM abilities are concerned, securely attached children were expected to achieve greater scores in advanced ToM tasks compared to their insecurely attached counterparts (H2). This hypothesis was confirmed, since securely attached children scored higher on faux pas tasks, a reliable measure of social understanding in everyday social interactions for the ages 9–11 (Baron-Cohen et al. 1999). Although there is little empirical evidence to date, a possible explanation of this finding is that securely attached children are characterized by more mature perspective taking than insecure peers (Crittenden 1992). Findings from younger children indicate that those securely attached in infancy were more likely to appreciate the inability of other people to read their thoughts and understood that a particular incident may provoke different emotional responses in different people (Main 1991).

Shy children scored lower in faux pas compared to their non-shy counterparts as it was expected (H3). It is possible that extremely shy children may miss out on important social experiences due to the fact that they are often socially excluded, and as a result they do not gain the same benefits (i.e. perspective-taking) from early peer experiences compared to non-shy children (Suway et al. 2012). Consequently, they tend to belong to those with the most severe performance in more advanced ToM abilities, such as the understanding of faux pas situations. In accordance with Broeren and Muris (2009) higher levels of ToM are associated with lower levels of shyness. Therefore, children with this temperament may have little chance to acquire the necessary skills required for adequate ToM development (Suway et al. 2012). No differences were found between shy and non-shy children in strange stories performance, as well as in social skills and self-esteem.

The underperformance of shy children in faux pas tasks may be related to negative peer experiences. Indeed, as it was anticipated (H4), non-shy children had higher scores in peer relations compared to those with high shyness scores. Shy children have difficulties in creating and maintaining healthy peer relations (Kingsbury et al. 2013). According to Bohlin et al. (2000) shy children exhibit less social initiative with peers, an aspect of peer competence that has considerable importance for peer acceptance. Peer exclusion, in turn, contributes to the maintenance or increase of social withdrawal over time (Ladd 2006), and to the manifestation and stabilization of shyness (Rubin and Coplan 2004), but are also among the most important consequences induced by shyness (Hoglund et al. 2008).

Correlations were to the expected directions and confirmed ANOVA results (H4), in that shyness was negatively correlated with performance on faux pas tasks and peer relations.

Based on the regression analysis, female students with insecure attachment histories and poor peer relations were more likely to endorse increased shyness scores, confirming Hypothesis (H5). Interestingly, being a girl explained half of the variance in shyness. It also appears that attachment style and peer relations play a more important role in understanding shyness than self-esteem and performance in ToM tasks. Results of the present study provided an empirical explanation of the role of both personal and social variables.

11 Limitations

One important limitation of the study is that data were only collected from a single source—providing a potential source of measurement error due to rater bias, as well as shared method variance—using a single method at a single time (cross sectional). Secondly, the use of a single-item instrument to assess children's attachment might have failed to provide an accurate estimate of children's attachment styles. In addition, the low reliability coefficients obtained for the two of the four social skills scales (self-control and assertion) should not remain unnoticed. Third, it was not possible to establish the exact direction of the relation between shyness and the rest of the variables because the study was correlational. It is likely that high levels of peer rejection underpin less favourable descriptions of attachment style and self-

reported social skills and shyness. Fourth, since the sample of the study was convenient and not representative of the pre-adolescents' school population, the results could not be generalized. Finally, the potential contributions of cognitive and verbal ability to children's ToM performance, although not sufficiently clear, may have affected participants' responses. In the present study, children's verbal ability was not tested, but was based only on teachers' recommendations, since only those students who had no learning problems participated.

12 Conclusions and implications

The results have practical implications both at individual and school levels. School efforts to prevent and intervene with shyness should take into consideration the inclusion of peers. Given that school classrooms constitute diverse contexts for children's well-being and development, teachers should create supportive environments to provide beneficial effects on several levels, including ameliorating the negative effects of peer rejection, especially for those children who are more shy. Early intervention at school can help young shy children learn more positive ways to interact. The promotion of a supportive school and classroom environment where shy children can be helped to express their social inhibition in a constructive manner should be of primary concern. In particular, the teacher can encourage social interactions that include the verbal use of terms describing one's, as well as others', mental states through social play, a practice which contributes to the understanding of many perspectives and to better communication with others. These experiences have been found critical in enhancing children's knowledge about others' mental states and are linked to the improvement of social empathy (Walker 2005). Furthermore, teachers should be vigilant for shy students' victimisation, because they constitute easy targets (Rubin et al. 2006). There is also evidence to suggest that the importance of relationships with emotionally significant others can improve adverse parental attachment experiences and change internal working models (Grossmann and Grossmann 1991). Teachers could become more sensitive to student's needs by recognizing the impact of negative emotions on classroom behavior, and the benefits of positive student–teacher interactions. They can also strive to understand the need to view children's behavior as the cumulative result of their relationship histories.

With regards to teaching and learning, teachers can promote the use of psychological explanations not only to lessons such as history and literature but also to sciences or mathematics, because they include knowledge, judgment, and beliefs (i.e. ToM abilities) (Wellman and Lagattuta 2004), for the explanation of various phenomena. As a result, shy children will be given more chances for discussions using mental states' terms, which contribute to the development of social understanding. Finally, teachers should not rely exclusively on the frequent participation of shy children in common activities and discussions in the classroom for assessing their academic performance, as shy students are characterized by verbal reluctance and intense hesitation for interacting with others. Instead a shy student may be assessed mainly through one's personal essays.

In sum, this study examined the association between shyness, social skills, self-esteem, peer relations, attachment style and advanced ToM skills, as reported by a sample of Greek pre-adolescents. Results indicated that children who perceive low peer relations are more likely to exhibit shyness, whereas insecurely attached children were more likely to perceive less peer relations, exhibit less social understanding, and report more shyness. However, ToM skills were not predictive of shyness.

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