



SHORTER COMMUNICATIONS

The role of parental fearfulness and modeling in children's fear

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Summary—The present study investigated the contribution of parental modeling to the fearfulness of children. Forty children (aged 9–12) who were referred to an outpatient treatment centre filled out the trait version of the Spielberger State-Trait Anxiety Inventory for Children (STAIC) and the revised version of the Fear Survey Schedule for Children (FSSC). The parents of the children completed adult versions of the STAI-trait and the FSS. In addition, parents rated to what extent they generally expressed fears to their children. Results showed that trait anxiety in children was positively associated with trait anxiety of both the mother ($r = 0.34$, $P < 0.05$) and the father ($r = 0.31$, $P < 0.05$). Fearfulness of the children was only related to fearfulness of the mother ($r = 0.56$, $P < 0.001$). Most importantly, the data showed that modeling played a role in this relationship. A linear association between FSSC scores and mothers' rating of expressing fears to their children was found. That is to say, children of mothers who never expressed their fears had the lowest FSSC scores, children of mothers who often expressed their fears had the highest FSSC scores, whereas children of mothers who sometimes expressed their fears scored in between.

INTRODUCTION

Childhood fears are very common (King, Hamilton & Ollendick, 1988), and it is well-known that the objects of these childhood fears are tied to specific developmental phases (e.g. Bauer, 1976). For example, young children are more afraid of animals, the dark, and separation, whereas older children are more apprehensive of social evaluation and competence. It has been proposed that childhood fears emerge because the child increasingly perceives the potential dangers in his environment, but is not able to understand them fully, nor to exercise control over them. In this view, fears are considered to be adaptive. That is, they constitute protective responses to stimuli that are neither comprehensible nor controllable (e.g. Öhman, 1986; Ollendick, Yule & Ollier, 1991). Nevertheless, childhood fears may cause considerable distress and impairment. For example, Ollendick and King (1994) found that over 85% of the children reported that their fears interfered with their daily activities and prevented them from doing things they would like to do.

Although childhood fears should be considered as a normal developmental phenomenon, marked individual differences in fearfulness of children can be observed. That is, whereas some children fear almost nothing, other children report to be afraid of a large number of different stimuli or situations (King *et al.*, 1988). Several authors have speculated about the mechanisms that underlie these individual differences in fearfulness. One common view is that the degree of fearfulness can best be regarded as a function of the individual genetic make-up and the environment (e.g. Marks, 1987; Eysenck, 1987). There is, indeed, some evidence for the genetic contribution to fearfulness. For example, in a study of Rose and Ditto (1983), the intensity of self-reported fears was assessed in monozygotic and dizygotic twins whose ages ranged from early adolescence to young adulthood. Results revealed that a twin's fearfulness could be predicted from the cotwin's score. Furthermore, intensity of fears was more similar in monozygotic twins than in dizygotic twins. Similar findings were obtained by Stevenson, Batten and Cherner (1992) in a sample of monozygotic and dizygotic twin children (aged between 8 and 18).

As for the environmental contribution to fearfulness, a number of recent studies have differentiated between three distinct pathways to fear: modeling, negative information, and conditioning (Rachman, 1977, 1990, 1991). The majority of the research in this area has focused on adults (see for reviews Öst, 1991; Menzies & Clarke, 1994), and there are only a few studies on the role of these pathways in the origins of childhood fears. For example, Ollendick and King (1991) examined the relative contribution of the three etiological routes to 10 highly prevalent childhood fears (e.g. snakes, not able to breathe). Results showed that the majority of children attributed the onset of their fears to modeling and informational processes (56 and 89%, respectively). Menzies and Clarke (1993) studied how children acquired their water phobia. Modeling appeared to be a common pathway (26%), although most of the children (56%) reported that they had always been fearful, even on their first encounter with water. A final study of Milgrom, Mancl, King and Weinstein (1995) examined the origins of childhood dental fear. Both direct conditioning and modeling were found to be independent predictors of children's fear level.

While these studies yield converging evidence for the role of modeling in the development of childhood fears, none of them has specified the details of this modeling process, e.g. the actors involved, the fear levels of these actors, etc.

The present study examined in more detail the contribution of modeling to the fearfulness of children. Assuming that parents are the most important models for children, the study specifically investigated the role of parental modeling. Forty outpatient children (aged 9–12) with diverse psychopathological symptoms completed the Fear Survey Schedule for

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Children (FSSC: Ollendick, 1983). In addition, the parents of the children were asked to complete the adult version of the Fear Survey Schedule (FSS: Arrindell, Emmelkamp & van der Ende, 1984) and to rate to what extent they generally expressed fears in the presence of their children. The first purpose of the study was to examine the relationship between fearfulness of children and fearfulness of their parents. The second and most important goal of the study was to investigate whether parental modeling contributes significantly to the fearfulness in children. In other words, are children of parents who often express their fears more fearful than children of parents who never or sometimes express their fears? Since it is generally believed that fearfulness is modulated by trait anxiety (e.g. Eysenck, 1992), it was decided to control for this factor by obtaining trait anxiety scores of both children and parents.

METHOD

Subjects

Subjects were 40 children (25 boys and 15 girls) who were referred to the Community Mental Health Centre, Eastern South-Limburg in Heerlen, The Netherlands, between November 1994 and June 1995. Children were included in the study when they met two criteria: (1) age between 9 and 12 yr; (2) both natural parents had to be present in the child's family. Forty-two children fulfilled these criteria. However, the parents of 2 children refused to participate leaving 40 Ss and their parents in the final sample.

The children had a mean age of 10.2 yr ($SD = 1.1$), and suffered from diverse psychopathological symptoms. The DSM-IV (American Psychiatric Association, 1994) classifications of the children were: disruptive behaviour disorder not otherwise specified ($n = 13$), oppositional-defiant disorder ($n = 8$), anxiety disorder not otherwise specified ($n = 9$), generalized anxiety disorder ($n = 4$), depressive disorder not otherwise specified ($n = 3$), post-traumatic stress disorder ($n = 2$), and obsessive-compulsive disorder ($n = 1$).

Instruments

Fear Survey Schedule for Children (FSSC: Ollendick, 1983). The FSSC is an 80-item self-report questionnaire. Children are asked to indicate their level of fear to various stimuli and situations on a 3-point scale: 'none', 'some', or 'a lot'. These are scored 1, 2 and 3, respectively, and then summed over the 80 items to yield a total fear score ranging from 80 to 240. Factor analysis of the FSSC reveals a 5-factor solution: fear of failure and criticism, fear of the unknown, fear of injury and small animals, fear of danger and death, and medical fears. Studies have demonstrated that this factor structure can be generalized across children and adolescents in the United States (Ollendick, 1983), Australia (Ollendick, King & Fray, 1989), England (Ollendick & Yule, 1990), and the Netherlands (Oosterlaan, Prins & Sergeant, 1992).

The trait version of the *State-Trait Anxiety Inventory for Children* (STAIC: Spielberger, 1973). The STAIC contains items such as 'I worry too much', and 'I get a funny feeling in my stomach'. Children have to rate these items on a 3-point scale: 'almost never', 'sometimes' or 'often'. STAIC scores range between 20 and 60 with higher scores reflecting higher levels of trait anxiety.

Fear Survey Schedule (FSS: Arrindell *et al.*, 1984). This questionnaire shortly describes 64 stimuli or situations. Subjects have to rate the fear provoking capacity of these situations and stimuli on a 5-point scale ranging from 1 (not at all fear provoking) to 5 (very much fear provoking). A total FSS score can be obtained by summing the scores of all 64 items (range 64–320).

An *expression-of-fear item* was added to the FSS. Parents were asked to what extent they generally expressed their fears in the presence of their children: 'almost never', 'sometimes', or 'often'.

Trait anxiety of the parents was measured using the *State-Trait Anxiety Inventory* (STAI: Spielberger, 1983). STAI scores range between 20 (almost never anxious) and 80 (almost always anxious).

Procedure

The FSSC and the STAIC were administered to the children individually upon referral for treatment. In all cases, this administration was conducted in the clinical setting as a part of the intake assessment. The FSSC was always given first.

Parents were given the FSS, STAI, and the expression-of-fear item at their first visit to the mental health centre. They were asked to complete the questionnaires at home, and to bring them along on their next appointment.

RESULTS

General results

Before addressing the main questions of the present investigation, some general results are presented. First, all questionnaires produced satisfactory Cronbach's alphas (ranging between 0.92 for FSS father and 0.96 for STAI mother; see Table 1). Second, a significant negative correlation was found between age and FSSC total scores [$r(40) = -0.46$, $P < 0.01$], a finding that replicates earlier studies showing that self-reported childhood fears decline with age (King, Ollier, Iacuone, Schuster, Bays, Gullone & Ollendick, 1989; King, Gullone & Ollendick, 1991; Ollendick & King, 1991, 1994; Ollendick *et al.*, 1989). Third, no sex differences were found on FSSC scores. This result contrasts with previous studies

Table 1. Means (standard deviations), Cronbach's alphas of the various questionnaires, and Pearson product-moment correlations between fear/anxiety measures of the children and those of the parents

	<i>M</i> (<i>SD</i>)	α	FSSC	STAIC
FSSC	126.2 (28.8)	0.95		
STAIC	35.1 (10.2)	0.95	0.74**	
FSS mother	118.7 (36.7)	0.94	0.56**	0.31*
FSS father	90.8 (23.0)	0.92	0.17	0.17
STAI mother	47.4 (12.0)	0.96	0.29	0.34*
STAI father	44.5 (10.6)	0.94	0.21	0.31*

* $P < 0.05$; ** $P < 0.001$.

Table 2. Mean FSSC scores (standard deviations) of children of mothers who never, sometimes, or often expressed their fears

	Expression-of-fear		
	Never	Sometimes	Often
Fear of failure and criticism	29.0 (6.8)	35.4 (8.2)	37.2 (8.7)
Fear of the unknown	24.2 (6.3)	29.0 (6.4)	32.9 (7.6)
Fear of minor injury and animals	22.2 (5.6)	26.6 (5.8)	31.3 (8.0)
Fear of danger and death	20.4 (6.3)	23.4 (4.9)	26.4 (6.7)
Medical fears	5.6 (1.6)	7.5 (2.3)	9.0 (2.7)
Total fear score	108.1 (24.3)	129.5 (23.8)	146.1 (30.2)

showing that girls are generally more fearful than boys (King *et al.*, 1991; Ollendick, 1983; Ollendick & King, 1991, 1994; Ollendick *et al.*, 1989). However, the current study was conducted in a clinical setting, and boys and girls displayed a highly similar distribution of psychopathological conditions. More specifically, the percentages of boys and girls were respectively 32.0 and 33.3 for conduct disorder, 20.0 and 20.0 for oppositional-defiant disorder, 4.0 and 6.7 for post-traumatic stress disorder, 12.0 and 6.7 for generalized anxiety disorder, 24.0 and 20.0 for anxiety disorder not otherwise specified, 4.0 and 13.3 for depressive disorder not otherwise specified, and 4.0 and 0.0 for obsessive-compulsive disorder. Fourth, in line with other studies (Ollendick *et al.*, 1991; King *et al.*, 1991), a clear positive correlation was found between trait anxiety as indexed by the STAIC and fearfulness of children [$r(40) = 0.74$, $P < 0.001$; see Table 1].

Relationship between fearfulness of children and their parents

Table 1 shows Pearson product-moment correlations between anxiety and fear measures of the children and those of their parents. As can be seen, trait anxiety in children was positively related to trait anxiety of both the mother [$r(40) = 0.34$, $P < 0.05$] and the father [$r(40) = 0.31$, $P < 0.05$]. Interestingly, a significant positive relationship was found between fearfulness of children and fearfulness of the mother [$r(40) = 0.56$, $P < 0.001$]. This relationship remained significant even after age, sex, trait anxiety of the child, and trait anxiety of the mother had been partialled out [partial $r(40) = 0.51$, $P < 0.005$]. No association was found between fearfulness of the child and fearfulness of the father [$r(40) = 0.17$, NS].

Contribution of parental modeling to fearfulness of children

The expression-of-fear item revealed that mothers expressed their fears more frequently in the presence of their child than fathers. The percentages of mothers who expressed their fears 'never', 'sometimes' or 'often' were 32.5 ($n = 13$), 42.5 ($n = 17$), and 25.0 ($n = 10$), respectively. For fathers these percentages were 60.0 ($n = 24$), 35.0 ($n = 14$), and 5.0 ($n = 2$), respectively ($\chi^2 = 8.9$, $P < 0.05$).

The contribution of parental modeling to the fearfulness of children was examined in two ways. First, one-way analyses of variance (ANOVAs) were carried out to evaluate whether children of mothers/fathers who 'never', 'sometimes' or 'often' expressed their fears exhibited different levels of fearfulness. Results showed that children's level of fearfulness as indexed by FSSC total scores, indeed, varied as a function of the expression-of-fear by their mothers [$F(2,39) = 6.2$, $P < 0.005$]. That is, children of mothers who never expressed their fears had the lowest FSSC scores, children of mothers who often expressed their fears had the highest FSSC scores, whereas children of mothers who sometimes expressed their fears scored in between. Further analyses revealed that this linear association was observed for 4 out of 5 FSSC factors [fear of failure and criticism: $F(2,39) = 3.6$, $P < 0.05$; fear of the unknown: $F(2,39) = 4.7$, $P < 0.05$; fear of minor injury and animals: $F(2,39) = 5.7$, $P < 0.01$; fear of danger and death: $F(2,39) = 2.9$, $P < 0.10$; and medical fears: $F(2,39) = 6.5$, $P < 0.01$; see Table 2]. In contrast, ANOVAs revealed no relationship between fathers' expression-of-fear and level of fearfulness in children [all $F_s(2,39) < 1.5$, NS].

Second, to examine whether expression-of-fear and fearfulness of the child share unique sources of variance, two stepwise regression analyses were carried out. In the first regression analyses with FSSC scores being the dependent variable and FSS/STAI/expression-of-fear of the mother and age/sex/trait anxiety of the child being the predictors, trait anxiety of the child entered on the first step ($r^2 = 0.55$). Three other variables contributed significantly to FSSC scores and were included in the regression equation [$F(4,39) = 24.9$], accounting for a further 18%: FSS mother (12%), expression-of-fear by the mother (4%), and age of the child (4%). In total, these four variables declared 75% of the variance of children's fearfulness. In the second regression analysis with FSSC scores being the dependent variable and FSS/STAI/expression-of-fear of the father and age/sex/trait anxiety of the child being the predictors, only trait anxiety of the child ($r^2 = 0.55$) and age (for a further 6%) entered in the regression equation [$F(2,39) = 28.0$].

DISCUSSION

The main results of the present study can be summarized as follows. First, a significant positive relationship was found between fearfulness of the mother and fearfulness of the child. This association remained significant when controlling for age, sex, trait anxiety of the child, and trait anxiety of the mother. Second, and most importantly, evidence was found to suggest that modeling mediates this relationship. That is, children of mothers who often expressed their fears exhibited the highest fear levels, children of mothers who never expressed their fears had the lowest fear levels, while children of mothers who sometimes expressed their fears fell in between. Furthermore, the results of a stepwise regression analysis revealed that expression-of-fear by the mother declared a unique proportion of the variance of children's fearfulness.

The results of the present study confirm the observations that were reported in older studies. For example, studies concerned with fear of air raids during World War II reported that children's fear were a function of the extent to which their mothers displayed overt signs of fear during air raids (see for a review Rachman, 1990).

There is a growing body of literature documenting the familial patterns in anxiety disorders (see for a review Bernstein & Borchardt, 1991). For example, in a study of Turner, Beidel and Costello (1987), children of patients with anxiety disorders diagnosis were assessed with a battery of self-report inventories (among which the STAIC and the FSSC) and a semistructured interview schedule. Children of anxiety disorders patients were found to be more anxious and fearful than normal children and children of depressed parents. Furthermore, they were more likely to meet the criteria for an anxiety

disorder. Since the current study did not document psychopathology of the parents in terms of psychiatric classifications, the comorbidity of anxiety disorders in parents and their children could not be investigated. Nevertheless, the results at least show that there is a familial pattern in fearfulness.

The present data suggest that mother's fear level as well as expression-of-fear contribute to the fearfulness of children. But what is the mechanism behind this contribution? Assuming that a child's level of fearfulness is developed during early childhood, the process of *social referencing* may play a role here. Social referencing refers to the phenomenon that young children search actively for emotional information from their caregiver (in most cases: the mother), and use this to appraise uncertain and unknown situations (see Marks, 1987, p. 123). For instance, in a study of Klinnert, Campos, Sorce, Emde and Svedja (1983), 1-yr-old children were placed on a visual cliff 30 cm deep, with their mothers across the deep side. When mothers on the other side posed fearful, the children showed distress and none of them crossed the cliff—as compared to 74% who crossed when the mother posed joy and interest. It is plausible to assume that young children who see their mother reacting fearfully to different stimuli, assimilate this emotional information, and hence develop higher levels of fearfulness.

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