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Citation for published version (APA):

Muris, P. E. H. M., Merckelbach, H. L. G. J., Ollendick, T. H., King, N. J., & Bogie, N. (2001). Children's nighttime fears: Parent-child ratings of frequency, content, origins, coping behaviors and severity. *Behaviour Research and Therapy*, *39*(1), 13-28. https://doi.org/10.1016/S0005-7967(99)00155-2

**Document status and date:**
Published: 01/01/2001

**DOI:**
10.1016/S0005-7967(99)00155-2

**Document Version:**
Publisher's PDF, also known as Version of record

**Please check the document version of this publication:**

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
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Behaviour Research and Therapy 39 (2001) 13–28

BEHAVIOUR RESEARCH AND THERAPY

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# Children's nighttime fears: parent–child ratings of frequency, content, origins, coping behaviors and severity

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Received 23 August 1999

**Abstract**

The present study investigated nighttime fears in normal school children aged 4 to 12 yr (*N*=176). Children and their parents were interviewed about the frequency, content, origins, coping behaviors and severity of children's nighttime fears. Results showed that 73.3% of the children reported nighttime fears, indicating that these fears are quite prevalent. Inspection of the developmental course of nighttime fears revealed that these fears are common among 4- to 6-year-olds, become even more frequent in 7- to 9-year-olds and then remain relatively stable in 10- to 12-year-olds. Inspection of the origins of nighttime fears revealed that most of the children (i.e., almost 80%) attributed their fear to negative information; conditioning and modeling were endorsed less frequently (25.6% and 13.2%, respectively). A substantial percentage of the children (24.0%) indicated that learning experiences had not played a role in the acquisition of their nighttime fears. Children reported a variety of coping strategies in order to deal with their nighttime fears and generally rated these strategies as helpful in reducing anxiety. Furthermore, children's nighttime fears were associated with moderate levels of anxiety. Moreover, in about 10% of the children, nighttime fears were related to one or more DSM-III-R anxiety disorders. Finally, parental reports of children's nighttime fears substantially deviated from children's reports. Most importantly, parents provided a marked underestimation of the frequency of nighttime fears, at least as reported by their children. © 2000 Elsevier Science Ltd. All rights reserved.

*Keywords:* Nighttime fears; Children; Anxiety; Anxiety disorders; Origins

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PII: S0005-7967(99)00155-2

## 1. Introduction

Specific fears are prevalent in children (e.g., King, Hamilton & Ollendick, 1988); yet, most of these fears are short-lived and disappear within months (e.g., Ferrari, 1986). However, in some children, specific fears become severe, interfere with normal functioning and may be quite durable (e.g., Bernstein & Borchardt, 1991). A substantial proportion of children display nighttime fears (King, Ollendick & Tonge, 1997). Children with these fears become highly anxious through the night or when exposed to darkness (e.g., Graziano, Mooney, Huber & Ignasiak, 1979). Although it was originally thought that nighttime fears occurred predominantly in very young children (Friedman & Ollendick, 1989), recent research has shown that these fears are also reported frequently by older children. For example, in two separate samples of 7- to 13-year-old children (Muris, Merckelbach & Collaris, 1997; Muris, Merckelbach, Meesters & Van Lier, 1997), 'fear of the dark' and 'fear of a burglar breaking into the house' featured in the top 10 of most common fears.

Nighttime fears constitute a heterogeneous class of fears. For example, Mooney (1985; see also Mooney, Graziano & Katz, 1985) distinguished the following nighttime fear categories: fear related to personal safety (e.g., fear of a kidnapper), fear associated with separation or loss of others (e.g., worry about parents dying), fear of imaginary creatures, fear of scary dreams and fear of the dark. Several studies have investigated the developmental pattern of childhood fears. In a frequently cited study, Bauer (1976) asked 4- to 12-year-old children to describe their main fears. Results showed that younger children more frequently reported fears of ghosts and monsters, whereas older children described more realistic fears related to physical injury and health (see, for similar results, Muris, Merckelbach, Gadet & Moulaert, in press). More specifically, 74% of 4- to 6-year-olds, 53% of 6- to 8-year-olds and 5% of 10- to 12-year-olds reported fears of ghosts and monsters; on the other hand, only 11% of 4- to 6-year-olds, but 53% of 6- to 8-year-olds and 55% of 10- to 12-year-olds reported fears of bodily injury and physical danger. Thus, children's level of cognitive development appears to be related to the expression of specific fears (Bauer, 1976).

The origins of children's nighttime fears are not well understood at this time. In their review article on nighttime fears, King et al. (1997, p.433) remark that "There is a dearth of scientific evidence on the causes of children's nighttime fears" and that "Clearly more research is needed on the etiology and maintenance of [these] fears". Rachman's (1977; 1991) three pathways theory may provide a useful framework for studying the origins of children's nighttime fears. According to this theory, there are three types of discrete but overlapping learning experiences that may play a critical role in the acquisition of fears: [1] aversive classical conditioning, [2] modeling (i.e., vicarious learning) and [3] negative information transmission. However, few studies have examined Rachman's theory in relation to childhood fears. In what seems to be the largest study on the origins of childhood fears, Ollendick and King (1991) evaluated to what extent the three pathways can be applied to the most intensive fears as assessed with the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983). Children who reported 'a lot' of fear to FSSC-R items such as 'not being able to breathe', 'being hit by a car or truck' and so forth, were given a short questionnaire that asked them whether they had experienced conditioning, modeling and/or informational events related to these stimuli or situations. The authors found that a majority of children attributed their fear to negative information (88.8% of the children reported such

experiences). Although modeling and conditioning events were less often mentioned by the children (56.2% and 35.7%, respectively), they too were frequent sources of fear acquisition. In an attempt to replicate these findings, Muris et al. (Muris, Merckelbach & Collaris, 1997; Muris, Merckelbach, Mayer & Meesters, in press) had children specify their most intense fear and then asked them whether conditioning, modeling and negative information played a role in the acquisition of that single fear. Similar to Ollendick and King (1991), these authors found that exposure to negative information was the most prominent pathway to fear, followed by conditioning and modeling. In both Muris et al. studies, children were also explicitly asked to what extent these learning experiences had intensified their fears. Thus, whereas Ollendick and King (1991) employed broad definitions of the three types of learning experiences ('Did it play a role?'), children in the Muris et al. studies answered the additional question whether these experiences served as antecedents for an intensification of their fears. With this more strict definition, conditioning (45.8–33.1%) and negative information (35.1–55.2%) appeared the most mentioned pathways, whereas modeling (3.8–25.5%) was less often endorsed.

Research by Mooney et al. (1985) has indicated that children report a variety of coping strategies in response to their nighttime fears. In their study, children indicated on a checklist what kind of coping strategies they used when they were alone at nighttime in the dark. Factor analysis revealed five coping categories: internal self-control (e.g., think to self that there is really nothing to be afraid of), social support (e.g., call mom or dad into room and ask them to sit close by), inanimate objects (e.g., hug pillow), prayer (e.g., pray) and avoidance/escape (e.g., try to stay up later). Furthermore, results showed that self-control and avoidance/escape were the most commonly used coping strategies. Little is known, however, about the effectiveness of these coping strategies in reducing children's nighttime fears. Although Mooney (1985) found that nighttime fearful children reported using more coping responses than nonfearful control children, it is possible that these children rely on less effective coping strategies compared to their nonfearful counterparts or that these coping strategies are simply ineffective with highly fearful children.

As is the case for childhood fears in general, it is far from clear just how serious nighttime fears are. As posed by Ollendick and King (1994a; p.635): "Do children really worry about [their] fears on a frequent or regular basis? Do they engage in avoidance behaviors to prevent their occurrence? Do the reported fears interfere with their daily functioning?" Few studies have addressed this issue in a systematic fashion. In a survey conducted by McCathie and Spence (1991), children were asked to rate the frequency of fearful thoughts and avoidance behaviors in response to their fears. McCathie and Spence (1991) noted robust connections between fears, on the one hand and frequency of fearful thoughts and avoidance behaviors, on the other hand. These results indicate that childhood fears are accompanied by aversive thoughts and avoidance behavior. Likewise, Ollendick and King (1994a) found that a large majority of children (i.e., more than 60%) reported that their fears interfered with daily activities. Collectively, these findings suggest that childhood fears may be more seriously distressing than previously thought. Yet, in order to get a true picture of the clinical significance of these fears, their connection to specific phobias and other anxiety disorders should be explored. A recent study by Muris, Merckelbach, Mayer and Prins (in press) addressed this issue. Fears of 290 children aged 8 to 13 yr were assessed via self-report on a fear schedule and then their severity was evaluated by means of the Diagnostic Interview Schedule for Children (DISC; National Institute of Mental Health (NIMH, 1992)), an instrument measuring anxiety disorders as defined by Diagnostic and Statistical Manual

of Mental Disorders (DSM; American Psychiatric Association (APA, 1987)). Results showed that in a sizable minority of the children (i.e., more than 20%), fears reflect significant anxiety disorders, most notably specific phobias. Thus, although there has been a tendency to view childhood fears as mild, transitory and nonpathological phenomena (e.g., Rutter, Tizard & Whitmore, 1968), the studies mentioned above make clear that at least a subgroup of children suffer from clinically significant and disabling fears.

The current study investigated nighttime fears of children aged 4 to 12 yr. More specifically, the following issues were addressed. First, the prevalence and content of nighttime fears of children across different age groups were examined. Second, it was assessed to what extent conditioning, modeling and negative information contributed to the acquisition of these fears. Third, children's coping responses and their effectiveness in reducing anxiety were investigated. Fourth and finally, the severity of children's nighttime fears was explored. Subjective ratings of the anxiety levels associated with these fears were obtained and the extent to which nighttime fears were related to DSM-defined anxiety disorders was explored.

Children are generally viewed to be better than their parents at reporting fear and other anxiety symptoms (Stallings & March, 1995). Nevertheless, parents may provide additional information about the frequency, content, origins, coping behaviors and severity of children's anxiety. For this reason, data on children's nighttime fears were obtained not only from the children but also from their parents.

## 2. Method

### *2.1. Children*

The sample consisted of 176 children (91 boys, 85 girls) who were recruited from a regular primary school in Stramproy, The Netherlands. Ages of the children ranged between 4 and 12 yr. Mean age of the total sample was 7.5 yr (S.D.=2.4). In order to examine developmental patterns of nighttime fears, the sample was divided into three age groups: [1] children aged 4, 5 and 6 yr ($n$=68), [2] children aged 7, 8, 9 yr ($n$=59) and [3] children aged 10, 11, 12 yr ($n$=49). This division was based on children's level of cognitive development which is considered to have influence on the experience of fear and anxiety (Bauer, 1976; Muris, Merckelbach, Gadet & Moulaert, in press).

Most children were Caucasian (99%). Percentages of children with low, middle, or upper socioeconomic background (based on the occupational levels of both parents) were 15, 65 and 20%, respectively. About 5% of children came from divorced families.

The parents of 160 of these children also participated in the study. In most cases, the mother provided information on children's nighttime fears ($n$=136). In other cases, the father ($n$=10) or both parents ($n$=14) were interviewed. Information from 16 parents was not available.

### *2.2. Child interview*

The interview with children lasted for about 10 min and started by telling the child a brief story from a picture-book. The picture-book was used to make the phenomenon of nighttime fears

more realistic and comprehensible to the younger children. The story ran as follows: "This child watches television at night. Then his mother tells him to go to bed. He asks whether he can stay up later, but mother refuses and tells him to go immediately. As slow as possible, the child goes upstairs with his mother right behind him. He brushes his teeth and then goes into his room. He lies down in his bed and mother reads a short story to him. When the story is finished, mother turns off the light and leaves the room, closing the door. When she is downstairs, the child becomes fearful…". Then, children were asked the following question: "How often are you fearful when you are lying in your bed at night?" (frequency; 1=*never*, 2=*sometimes*, or 3=*often*). Children who indicated that nighttime fears were present, i.e., children who answered with *sometimes* or *often* to the frequency question, were invited to provide details about content and severity. More specifically, they were asked 'What are you afraid of?' (content) and 'How anxious are you of… [the content of the fear]?' (severity; 1=*not at all anxious*, 2=*anxious*, or 3=*very anxious*). Next, these children were interviewed about the origins of their nighttime fears. Separate questions were asked about conditioning events (e.g., 'Did you ever experience a frightening event with… [the content of the fear]?'), modeling (e.g., 'Have you seen your mother being afraid of… [the content of the fear]?' and negative information (e.g., 'Did you see frightening things on television about… [the content of the fear]?'). It is important to note that children were allowed to endorse more than one of the acquisition pathways and that conditioning, modeling and negative information were defined employing the stringent criteria proposed by Muris et al. (Muris, Merckelbach & Collaris, 1997; Muris, Merckelbach, Mayer & Meesters, in press; cf. supra). Finally, children were asked to describe the coping strategies that they used in response to their nighttime fears ('What do you do when you are anxious at night?') and then to rate the effectiveness of these strategies ('How much does… [the coping strategy] help you to become less anxious?'; 1=*not at all helpful*, 2=*helpful*, or 3=*very helpful*).

### *2.3. Parent interview*

Parents were asked identical questions about the content, frequency, severity, origins and coping behaviors of their child's nighttime fears. In addition, parents were interviewed with the Anxiety Disorders section of the Diagnostic Interview Schedule for Children (DISC; National Institute of Mental Health, 1992). Parents were 'blind' to their children's responses during the child interview. The parent interview lasted for about 1 h.

### *2.4. Anxiety disorders interview*

The parent version of the DISC (version 2.3; NIMH, 1992) is a highly structured, lay-administered interview that asks for the occurrence of emotional disorders during the last 6 months in terms of DSM-III-R (APA, 1987) criteria. DSM-III-R criteria were used rather than DSM-IV criteria, because the Dutch version of the DISC has been validated against DSM-III-R categories (e.g. Verhulst, Van der Ende, Ferdinand & Kasius, 1997). Previous research has shown that the DISC possesses adequate test-retest reliability (Schwab-Stone et al., 1993), sufficient interrater reliability (Shaffer et al., 1993) and acceptable validity (Piacentini et al., 1993). DISC was employed to examine the severity and interference of nighttime fears in more detail. For each fear reported by the children, a limited set of plausible anxiety disorder diagnoses was tested (for

details: Muris, Merckelbach, Mayer & Meesters, 1998). For example, in the case of 'fear of the dark', presence of criteria for specific phobia — environmental type, generalized anxiety disorder and separation anxiety disorder — was determined. Furthermore, in evaluating the severity of nighttime fears, a conservative approach was taken. That is, only when DISC interviews of parents yielded straightforward indications for the presence of an anxiety disorder in their children and only when the child reported a nighttime fear of which the content was clearly related to the anxiety disorder, the anxiety disorder diagnosis was considered to be linked to the nighttime fear.

### *2.5. Procedure*

More than 200 children and their parents were asked to participate in the present study. 176 children and their parents (i.e. 80%) gave informed consent. First, the child was interviewed individually in a private room at school. Next, parents were contacted by telephone to make an appointment: 160 parents (i.e. more than 90%) were interviewed at home within 1 week after the child interview.

### *2.6. Data analysis*

The Statistical Package for Social Sciences (SPSS) was used to calculate descriptive statistics (frequencies, percentages) and to carry out chi square tests, *t*-tests and analyses of variance. It should be noted that, for the most part, data analyses revealed similar results for boys and girls. Therefore, with few exceptions, findings for the total group will be presented in the Results section.

## 3. Results

### *3.1. Frequency and content of children's nighttime fears*

A large proportion of children reported having nighttime fears (*n*=129, 73.3%) showing that this type of fear is relatively common in normal children. Table 1 shows that fear of intruders was most common (*n*=41, 23.3% of the total sample; e.g. burglars, kidnappers), followed by fear of imaginary creatures (*n*=29, 16.5%; e.g. ghosts, monsters), frightening dreams (*n*=22, 12.5%), environmental threats (*n*=16, 9.1%; e.g. the dark, thunderstorm), animals (*n*=13, 7.4%; e.g. spiders) and frightening thoughts (*n*=8, 4.5%; e.g. worry about personal health, worry about parents dying). As noted in Table 1, 26.7% of the children reported no nighttime fears

Parents reported considerably fewer nighttime fears in their children. According to parents' estimates, only 34.0% of their children would have such fears. However, as to the content of fears, there was correspondence between themes mentioned by parents and those mentioned by children (Table 2). Still, the rank order of fears based on parents' report deviated somewhat from that based on children's report. According to the parents, fear of intruders was most prevalent in their children (*n*=13, 8.0%), followed by fear of imaginary creatures (*n*=11, 6.8%), environmental threats (*n*=11, 6.8%), frightening thoughts (*n*=10, 6.2%), frightening dreams (*n*=8, 4.9%) and

Table 1
Frequency and content of nighttime fears reported by the children[a]

| | Total group (*N*=176) frequency (%) | Boys (*n*=91) frequency (%) | Girls (*n*=85) frequency (%) | 4- to 6-year-olds (*n*=68) frequency (%) | 7- to 9-year-olds (*n*=59) frequency (%) | 10- to 12-year-olds (*n*=49) frequency (%) |
|---|---|---|---|---|---|---|
| 1 Intruders | 41 (23.3) | 22 (24.2) | 19 (22.4) | 3 $(4.4)_a$ | 20 $(33.9)_b$ | 18 $(36.7)_b$ |
| 2 Imaginary creatures | 29 (16.5) | 16 (17.6) | 13 (15.3) | 12 (17.6) | 11 (18.6) | 6 (12.2) |
| 3 Frightening dreams | 22 (12.5) | 10 (11.0) | 12 (14.1) | 13 $(9.1)_a$ | 9 $(15.3)_a$ | 0 $(0.0)_b$ |
| 4 Environmental threats | 16 (9.1) | 6 (6.6) | 10 (11.8) | 9 (13.2) | 2 (3.4) | 5 (10.2) |
| 5 Animals | 13 (7.4) | 8 (8.8) | 5 (5.9) | 2 (2.9) | 6 (10.2) | 5 (10.2) |
| 6 Frightening thoughts | 8 (4.5) | 4 (4.4) | 4 (4.7) | 1 $(1.5)_a$ | 2 $(3.4)_{a,b}$ | 5 $(10.2)_b$ |
| No fear | 47 (26.7) | 25 (27.5) | 22 (25.9) | 28 $(41.2)_a$ | 9 $(15.3)_b$ | 10 $(20.4)_b$ |

[a] Numbers (percentages) in the same row that do not share subscripts differ at $p<0.05$.

Table 2
Frequency and content of children's nighttime fears reported by the parents[a]

| | Total group (*N*=160) frequency (%) | Boys (*n*=82) frequency (%) | Girls (*n*=78) frequency (%) | 4- to 6-year-olds (*n*=61) frequency (%) | 7- to 9-year-olds (*n*=53) frequency (%) | 10- to 12-year-olds (*n*=46) frequency (%) |
|---|---|---|---|---|---|---|
| 1 Intruders | 13 (8.1) | 5 (6.1) | 8 (10.3) | 2 (3.3) | 5 (9.4) | 6 (13.0) |
| 2 Imaginary creatures | 11 (6.9) | 6 (7.3) | 5 (6.4) | 6 (9.8) | 3 (5.7) | 2 (4.3) |
| 3 Environmental threats | 11 (6.9) | 6 (7.3) | 5 (6.4) | 7 (11.5) | 3 (5.7) | 1 (2.2) |
| 4 Frightening thoughts | 10 (6.3) | 3 (3.7) | 7 (9.0) | 5 (8.2) | 4 (7.5) | 1 (2.2) |
| 5 Frightening dreams | 8 (5.0) | 3 (3.7) | 5 (6.4) | $7\ (11.5)_{a}$ | $1\ (1.9)_{b}$ | $0\ (0.0)_{b}$ |
| 6 Animals | 2 (1.3) | 2 (2.4) | 0 (0.0) | 0 (0.0) | 1 (1.9) | 1 (2.2) |
| No fear | 105 (65.6) | 57 (69.5) | 48 (61.5) | $34\ (55.7)_{a}$ | $36\ (67.9)_{a,b}$ | $35\ (76.1)_{b}$ |

[a] Numbers (percentages) in the same row that do not share subscripts differ at $p<0.05$.

animals ($n$=2, 1.2%). However, it should be noted that intruders and imaginary creatures were the top two types of fears endorsed both by children and their parents.

### 3.2. Developmental patterns

Frequency of children's nighttime fears differed across the three age groups [$\chi^2(2)=12.2$, $p<0.005$]. As can be seen in Fig. 1, nighttime fears were commonly reported by 4- to 6-year-old children (58.8%), were even more prevalent in 7- to 9-year-olds (84.7%) and then remained relatively stable among 10- to 12-year-olds (79.6%). Reports by children's parents revealed a different pattern. According to parents, nighttime fears occurred in 44.3 % of the 4- to 6-year-old children and then was found to decrease gradually among 7- to 9- and 10- to 12-year-olds [32.1% and 23.9%, respectively; $\chi^2(2)=5.0$, $p<0.10$] (Fig. 1).

As to the specific fear categories, chi square tests revealed that the frequency of frightening dreams decreased with age [children: $\chi^2(2)=10.1$, $p<0.01$; parents: $\chi^2(2)=8.9$, $p<0.05$], whereas fears of intruders [children: $\chi^2(2)=22.2$, $p<0.001$] and frightening thoughts [children: $\chi^2(2)=5.3$, $p<0.10$] increased as children became older (see the right panels of Tables 1 and 2).

### 3.3. Origins of nighttime fears

Table 3 shows the frequencies of children who reported conditioning, modeling and negative information experiences as etiologic factors in the origins of their nighttime fears. As can be seen, the vast majority of children (77.5%) attributed their fear to negative information (largely from television). Percentages of children who reported conditioning and modeling experiences were considerably lower (25.6% and 13.2%, respectively). 24.0% of the children endorsed none of the pathways and hence indicated that they did not know where their nighttime fears came from.

Parents reported highly similar percentages as to the pathways of their children's nighttime fears. According to parents, exposure to negative information was most prevalent (61.9%), followed by conditioning (23.6%) and modeling (9.0%). About one third of the parents (34.5%)

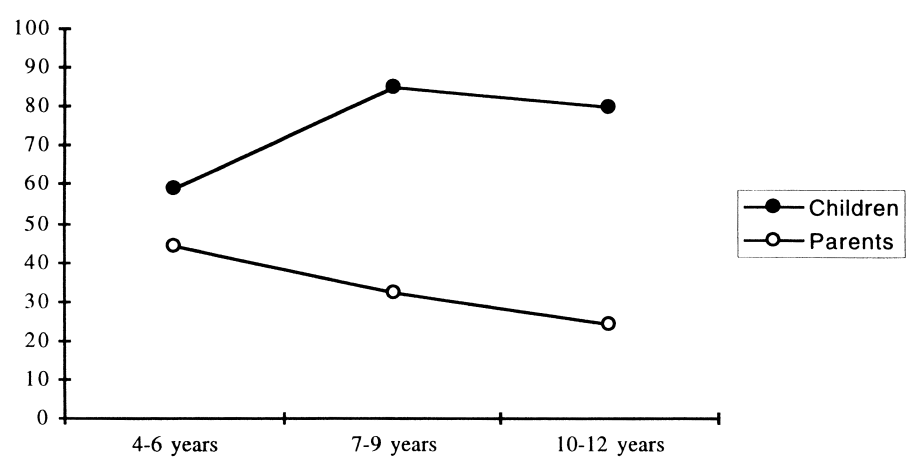


Fig. 1. Frequency of children's nighttime fears according to children's and parents' report.

Table 3
Numbers (percentages) of children/parents reporting information, modeling and conditioning experiences in relation to children's nighttime fears[a]

| | Children ($n$=129) frequency (%) | Parents ($n$=55) frequency (%) |
|---|---|---|
| Conditioning | 33 (25.6) | 13 (23.6) |
| Modeling mother | 7 (5.4) | 2 (3.6) |
| Modeling father | 2 (1.6) | 1 (1.8) |
| Modeling siblings | 7 (5.4) | 2 (3.6) |
| Modeling others | 1 (0.8) | 0 (0.0) |
| Information others | 27 (20.9) | 14 (25.5) |
| Information television | 73 $(56.6)_a$ | 20 $(36.4)_b$ |
| Don't know | 31 (24.0) | 19 (34.5) |

[a] Numbers (percentages) in the same row that do not share subscripts differ at $p<0.05$.

mentioned none of the pathways. The only significant difference between children's and parents' reports on the origins of nighttime fears was that negative information by television was more frequently mentioned by children than by parents [$\chi^2(1)=6.3$, $p<0.05$].

### 3.4. Coping behaviors

The coping strategies reported by children (Table 4) were 'seeking support from parents' ($n$=57, 44.2%; e.g. 'I call mother and father into the bedroom and ask them to sit close by'), avoidance ($n$=38, 29.5%; e.g. 'I try to stay up later'), distraction ($n$=35, 27.1%; e.g. 'I start reading a book'), trying to sleep ($n$=31, 24.0%; e.g. 'I try to go to sleep right away'), active control ($n$=15, 11.6%; e.g. 'I check my room to see whether someone is there'), 'clinging to stuffed animals' ($n$=7, 5.4%; e.g. 'I hug my teddy bear'). Girls more frequently reported to cope with

Table 4
Nighttime coping behaviors and their effectiveness in reducing anxiety[a]

| | Children ($n$=129) frequency (%) | Parents ($n$=55) frequency (%) | Effectiveness of coping[b] mean (S.D.) |
|---|---|---|---|
| 1 Seeking support from parents | 57 (44.2) | 21 (38.2) | 2.5 (0.5) |
| 2 Avoidance | 38 (29.5) | 12 (21.8) | 2.3 (0.7)[c] |
| 3 Distraction | 35 $(27.1)_a$ | 2 $(3.6)_b$ | 2.7 (0.6) |
| 4 Trying to sleep | 31 $(24.0)_a$ | 1 $(1.8)_b$ | 2.5 (0.5) |
| 5 Active control | 15 $(11.6)_a$ | 1 $(1.8)_b$ | 2.9 (0.4)[c] |
| 6 Clinging to stuffed animals | 7 (5.4) | 2 (3.6) | 2.4 (0.5) |
| Don't know | | 20 (36.4) | |

[a] Numbers (percentages) in the same row that do not share subscripts differ at $p<0.05$.
[b] Effectiveness was rated by the children on a 3-points scale (1=*not at all helpful*, 2=*helpful*, 3=*very helpful*).
[c] Mean score deviating from the mean effectiveness rating of other coping behaviors ($p < 0.05$).

their nighttime fears by 'seeking support from parents' than boys, frequencies/percentages being $n$=36, 57.1% versus $n$=21, 31.8% [$\chi^2(1)=8.4$, $p<0.005$].

Parents reported comparable frequencies for the more overt coping behaviors of their children, i.e., seeking support from parents ($n$=21, 38.2%) and avoidance ($n$=12, 21.8%). However, parents underreported coping strategies such as distraction [$n$=2, 3.6%; $\chi^2(1)=13.3$, $p<0.001$], trying to sleep [$n$=1, 1.8%; $\chi^2(1)=13.2$, $p<0.001$] and active control [$n$=1, 1.8%; $\chi^2(1)=4.7$, $p<0.05$]. A substantial proportion of parents ($n$=20, 36.4%) did not know how their children coped with their nighttime fears.

Children generally rated their coping behaviors as *helpful* for reducing their anxiety: mean=2.5, S.D.=0.6. Furthermore, a one-way analysis of variance revealed that coping strategies differed with respect to their effectiveness: an avoiding coping strategy was reported to be less effective in dealing with anxiety, whereas an active control coping strategy appeared to be more effective [$F(3,125)=2.9$, $p<0.05$].

### 3.5. Severity of nighttime fears

Both children and their parents rated that nighttime fears were accompanied by moderate levels of anxiety: means being 2.0 (S.D.=0.4) and 2.2 (S.D.=0.5), respectively. Girls reported somewhat higher anxiety levels in relation to their nighttime fears than boys, means being 2.1 (S.D.=0.5) versus 1.9 (S.D.=0.2), respectively [$t(95.0)=1.8$, $p<0.10$] (Table 5).

The DISC interview with the parents revealed that 18 children (11.3%) displayed DSM-III-R anxiety disorders that could be related to their nighttime fears. Separation anxiety disorder ( $n$=10, 6.3%) and overanxious disorder ($n$=7, 4.4%) were most frequent. Animal phobias (spiders: $n$=2, 1.3% and snakes: $n$=1, 0.6%) and environmental phobias (the dark: $n$=2, 1.3%) were less common.

Table 5
Children's and parents' ratings of anxiety levels and DSM-III-R anxiety disorders in relation to nighttime fears[a]

| | Rating |
|---|---|
| *Anxiety level*[b] | mean (S.D.) |
| Children[c] | 2.0 (0.4) |
| Parents[d] | 2.2 (0.5) |
| *DSM-III-R anxiety disorder*[e] | frequency (%) |
| Separation anxiety disorder | 10 (6.3) |
| Overanxious disorder | 7 (4.4) |
| Animal phobia | 3 (1.9) |
| Environmental phobia | 2 (1.3) |
| Blood-injury phobia | 0 (0.0) |
| At least 1 anxiety disorder | 18 (11.3) |

[a] DSM-III-R=Diagnostic and Statistical Manual of Mental Disorders, third edition-revised.
[b] Anxiety levels were rated on a 3-points scale (1=*not at all anxious*, 2=*somewhat anxious*, 3=*very anxious*).
[c] $n$=129.
[d] $n$=55.
[e] Assessed with the parent version of the Diagnostic Interview Schedule for Children, $n$=160.

## 4. Discussion

The present study examined nighttime fears of normal children aged 4 to 12 years. The main results can be summarized as follows. To begin with, the percentage of children who reported nighttime fears was 73.3%, indicating that this type of fear is prevalent among children. Second, nighttime fears were primarily concerned with intruders, imaginary creatures, frightening dreams, environmental threats, animals and frightening thoughts (cf., Mooney et al., 1985). Third, inspection of the developmental pattern of nighttime fears revealed that these fears were present in more than half of the 4- to 6-year-olds, became more frequent among 7- to 9-year-olds (more than 80%) and then remained relatively stable among 10- to 12-year-olds. Fourth, exposure to negative information appeared to be the most commonly reported pathway in relation to the origins of nighttime fears. Fifth, children reported a variety of coping strategies in order to deal with their nighttime fears and they generally rated these strategies as helpful in reducing their anxiety. Sixth, children's nighttime fears were associated with moderate levels of anxiety. Moreover, in 11.3% of the children, nighttime fears appeared to be associated with one or more DSM-III-R anxiety disorders. Finally, parental reports of children's nighttime fears substantially deviated from children's reports in frequency and severity, but not in content.

In a recent study by Muris et al. (Muris, Merckelbach, Mayer & Meesters, in press), percentages of 4- to 12-year-old children reporting fears, worries and scary dreams were 75.8, 67.4 and 80.5%, respectively. With a frequency of 73.3% in this study, nighttime fears also belong to the more prevalent anxiety phenomena reported by children and their parents.

Although a majority of the 4- to 6-year-old children (58.8%) reported nighttime fears, these fears became more prevalent in older children (84.7% in 7- to 9-year-olds and 79.6% in 10- to 12-year-olds). It seems plausible to interpret this developmental course in the prevalence of nighttime fears in terms of children's cognitive development. That is to say, it is a well-known fact that from about the age of 7, children are increasingly able to infer physical cause-effect relationships and to anticipate potential negative outcomes, thereby broadening the range of fear-provoking stimuli (see also Muris, Merckelbach, Mayer & Meesters, in press; Vasey, Crinic & Carter, 1994). As to the developmental pattern of specific nighttime fears categories, the present findings are well in line with those found for general fears in children of this age (Muris, Merckelbach, Mayer & Meesters, in press). More specifically, fears of dreams and imaginary creatures (although not significantly in the present study) were found to decrease with age, whereas fears of personal harm (i.e., fear of intruders) and frightening thoughts (i.e., worry) appeared to become more prevalent as children increased in age.

As to the origins of children's nighttime fears, a large majority of the children (i.e., almost 80%) attributed their fear to exposure to negative information. The percentages of children who endorsed conditioning and modeling pathways were considerably lower (i.e., 25.6% and 13.2%, respectively). The high percentage for the negative information pathway comes close to that found by Ollendick and King (1991) evaluating the origins of FSSC-R-defined childhood fears. However, it should noted that percentages for the three pathways as found in the present study clearly deviated from those obtained by Muris et al. (Muris, Merckelbach & Collaris, 1997; Muris, Merckelbach, Mayer & Meesters, in press) who employed similar stringent criteria for defining conditioning, modeling and negative information pathways for children's most intense fears. There is no straightforward explanation for this aberrant finding, but it is possible that nighttime fears

represent a distinct fear category which has different origins than those for other common childhood fears. More specifically, nighttime fears may be more frequently acquired through negative information and less often through conditioning and modeling.

A substantial percentage of children (i.e., 24%) indicated that none of the three pathways played a role in the acquisition of their nighttime fears. This result seems to be in line with the notion that some of these fears could be biologically prepared (e.g., Seligman, 1971). For example, it would be adaptive for young children to display a fear of the dark, because darkness is a situation which is potentially threatening and dangerous. As King et al. (1997; p.433) have pointed out, 'children's nighttime fears… are probably due to an interaction of several factors: biological, environmental and cognitive-mediational'.

Children reported a variety of coping behaviors in order to deal with their nighttime fears, viz. seeking support from parents, avoidance, distraction, trying to sleep, active control and clinging to stuffed animals. These self-reported coping strategies bear strong resemblance to those listed by Mooney et al. (1985) in their nighttime coping questionnaire. Interestingly, a comparison of the effectiveness ratings of the coping strategies suggested that avoiding strategies (e.g., 'I try to stay up later' or 'I look away when I see something scary') were the least effective, whereas more active coping strategies ('I check under my bed') were reported as most helpful. It is possible, however, that this result is merely due to the fact that highly anxious children (who rate their coping as less effective; see Spence & Dadds, 1996) more frequently rely on avoidance strategies, whereas low anxious children more often rely on active, problem-focused strategies.

Children's self-report revealed that nighttime fears were associated with moderate levels of anxiety. Furthermore, the DISC interview with the parents revealed that nighttime fears were related to specific DSM-III-R defined anxiety disorders in 11.3% of the children. With respect to this finding, two remarks are in order. First, in most cases, severe nighttime fears should be viewed as a symptom that may accompany separation anxiety disorder, generalized anxiety disorder and/or specific phobias. Second, the prevalence rate of anxiety disorders associated with nighttime fears was lower in this study than that found by Muris et al. (Muris, Merckelbach, Mayer & Prins, in press) examining DSM-III-R anxiety disorders in relation to common childhood fears. These authors showed that fears were related to anxiety disorders in more than 20% of the children. As both studies employed the DISC for assessing children's anxiety disorders, one could conclude that nighttime fears are less severe than common childhood fears. However, it is important to note that the present study made use of parent report, whereas the Muris et al. (loc. cit.) study relied solely on child report. One would expect a greater concurrence in child self-report and interview obtained directly from the children than interview obtained from their parents.

The present data show that parent and child report often substantially diverge. This point is most clearly illustrated by comparing parent and child report on the frequency of children's nighttime fears. Whereas 73.3% of the children reported nighttime fears, only 34.0% of the parents said that their children had such fears. With regard to other aspects of children's nighttime fears (e.g., origins of nighttime fears), there appeared to be somewhat more correspondence between parent and child report. Several authors (e.g., Roberts, Vargo & Ferguson, 1989) have pointed out that parent-child agreement is often low. Although parents may provide additional information on children's anxiety symptoms, children should be considered as the primary informant (see for a discussion of this topic, Stallings & March, 1995).

Of course, the present study has several methodological limitations. First, the study relied solely

on child and parent interviews and did not use any standardized self-report measures for assessing children's nighttime fears. However, it should be noted that available questionnaires such as the Children's Nighttime Fear Survey (Mooney et al., 1985) are designed for 8-year-old children and above and hence were not suitable for the younger children in our sample. Second, the severity of children's nighttime fears was only assessed by means of the parent version of the DISC. The employment of the child version of the DISC, at least for the older children, would have yielded a more complete picture of the severity of children's nighttime fears. Again, the age range of the children in the current study was the restrictive factor: the DISC interview is less valid in younger children and not applicable to children under age 6 (Edelbrock, Costello, Dulcan, Kalas & Conover, 1985). Lastly, the current study relied on a cross-sectional research design. A longitudinal investigation in which children's nighttime fears are assessed at crucial ages would provide a more valid picture of the developmental pattern of these fears (Ollendick & King, 1994b).

A brief comment should be made on the treatment of children's nighttime fears. Over the past 10 yr, research has accumulated underlining the efficacy of cognitive-behavioral therapy for anxiety symptoms in children (Ollendick & King, 1998). In their review article on children's nighttime fears, King et al. (1997; p. 441; see also King, Molloy, Heyne, Murphy & Ollendick, 1998) conclude: "Controlled investigations have shown that cognitive-behavioral strategies are remarkably efficient in the treatment of severe nighttime fears. However, these investigations have generally not controlled for a possible placebo effect, which we see as a major methodological limitation". Recently, a randomized clinical trial on the efficacy of emotive imagery (a child variant of systematic desensitization) was reported by Cornwall, Spence and Schotte (1996). Children with severe nighttime fears were randomly assigned to either emotive imagery treatment or a waiting-list control condition. Results indicated that the emotive therapy group showed significantly greater reductions in nighttime fears and anxiety than the waiting-list group. It seems worthwhile to conduct more controlled outcome studies and to establish cognitive-behavioral therapy as a truly effective treatment for the severe nighttime fears of children.

## Acknowledgements

Children and their parents, teachers and staff of primary school St. Jan, Stramproy, The Netherlands, are thanked for the participation in the present study. Ingrid Candel is acknowledged for her assistance in processing the data.

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