The Effect of Parental Verbal Threat Information on Children's Attention to Strangers: The Role of Child Social Anxiety

Pater, Annemieke de

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Faculty of Social and Behavioral Sciences – Leiden University
Name: A. de Pater
Student number: 1797425
Supervisor: Evin Aktar, PhD
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Abstract

Background: Parental verbal threat information is considered to play an important role in the development of childhood anxiety. Attentional biases induced by verbal threat information may increase the risk of developing social anxiety disorder. This study aims to investigate the effect of parental verbal threat information about strangers on children's attention to these strangers. In addition, we explored the potential moderating role of child social anxiety. **Method:** The sample consisted of 75 9-to-14-year-old children (*M*= 11.51 years; 39 girls) and their primary caregivers from the community. The children filled in a questionnaire to measure their social anxiety levels. In the lab, the children had to give two speeches about shyness and confidence in front of two different strangers. Before the social performance, the caregiver verbally communicated threat or safety information about the two strangers. The duration of the looks measured the child's attention to each stranger during the social performance. **Results***:* The parental verbal information did not influence the child's attention to the stranger during the social performance. No significant moderation of this effect by the child's social anxiety was observed. **Conclusions:** Parental verbal threat information about strangers does not influence children's attention to these strangers. In addition, child social anxiety does not affect the effect of parental verbal information on children's attention to strangers.

Keywords: verbal information pathway, parents, attention, child social anxiety, strangers

The Effect of Parental Verbal Threat Information on Children's Attention to Strangers: The Role of Child Social Anxiety.

Anxiety disorders are highly prevalent among both adults and children (Bijl et al., 1998). Social anxiety disorder (SAD) is the most common subtype with a lifetime prevalence rate of 7.8% (Bijl et al., 1998; Hidalgo et al., 2001; Schneier, 2006). SAD is characterized by a persistent fear of social situations or performance situations due to the fear of being evaluated negatively by others (American Psychiatric Association, 2013). SAD is associated with significant impairment in social life, education, and work (Aderka et al., 2012; Alonso et al., 2004; Kessler et al., 2003) and is often comorbid with disorders such as major depression (Lampe et al., 2003). SAD typically starts during childhood or early adolescence, with a median age of onset around 13 years old (Kessler et al., 2005). There is also a familial contribution to SAD (Spence & Rapee, 2016; Fisak & Grills-Taquechel, 2007). Children of parents with SAD are significantly more at risk to develop SAD (for a review, see Elizabeth et al., 2006). Given the high prevalence and the severe impact of SAD, it is essential to investigate the developmental pathways of SAD and the influence of parents on the development of SAD in early adolescence.

The pathways in the development of SAD are complex. The disorder likely arises from an interplay between intra-individual factors (genetic, biological processes, cognitive processes, and social skills) and environmental factors (such as parental influences) (Spence & Rapee, 2016). Cognitive theories highlight the role of information processing biases, particularly attentional biases, in the development of SAD (for a review, see Van Bockstaele et al., 2014). Attentional biases emerge when stimuli are competing for limited attentional resources; attention to one stimulus will be decreased at the expense of attention to another stimulus (Mathews & MacLeod, 2002). In stressful social situations, individuals with SAD prioritize the processing of threat-related information, which causes their attention to shift

toward threat-related stimuli (Mathews & MacLeod, 2002). Attentional biases can be induced by receiving negative verbal information from other individuals and can increase anxiety in children (Mathews & MacLeod, 2002). To sum up, attentional biases might play an important role in the etiology of SAD together with genetics and environmental factors.

An important environmental factor to consider in the development of SAD is the influence of parents since parents play a vital role for children in their early adolescence (Knappe et al., 2010). The role of parents in the acquisition of fear can be understood in the light of the fear acquisition theory by Rachman (1977). Rachman (1977) proposes that fear can be socially acquired through observing someone's fearful reactions to a stimulus (modeling) and through the verbal transmission of threat information. Modeling of anxious behaviors of the parents can therefore contribute to the child's learning of anxiety (Fisak & Grills-Taquechel, 2007; Murray, Creswell, & Cooper, 2009). Children are also able to acquire fear of a particular stimulus by receiving verbal threat information about a stimulus (Percy et al., 2016; Muris & Field, 2010). For example, if a parent tells their child that a particular person is very mean, this may cause the child to have more anxious thoughts about that person or to avoid that person. Thus, parents can contribute to the development of SAD in their child by verbally communicating anxiety and by displaying anxious behaviors in front of their child, allowing the child to model these behaviors.

Despite the presumably important role of parents in the verbal transmission of anxiety to children, researchers (instead of parents) were the source of the verbal information in most earlier studies that investigated this topic. However, these studies still support the theory that verbal threat information from an experimenter leads to more anxiety in children than neutral or safe verbal information (Field & Lawson, 2003; Field et al., 2008). For example, in the study of Field et al. (2008), children (aged 6-8 and 12-13 years) received either threat-, positive- or no information about novel animals from a researcher. The results indicate that

children's reported fear changed congruently with the type of information they received. Thus, children presented with threat information about the novel animals from a researcher reported more fear than children who received positive or no information. Concisely, verbal transmission of anxiety is an important environmental pathway that influences children's anxiety.

Only two experimental studies on the influence of verbal information transmission included the parents as the source of information. In the first study by Muris et al. (2010), parents of 8-to-13-year-old children were instructed to give their children positive, negative, or ambiguous information about pictures of novel animals. The results indicated that children who had received negative information from their parents showed higher levels of fear beliefs regarding the novel animal than children who had received positive or ambiguous information (Muris et al., 2010). Remmerswaal et al. (2010) found similar results in 9-to-12-year-old children; children who received negative information from their parents reported more fear beliefs than children who received positive information. Thus, these two studies indicate that verbal threat information provided by parents influences the acquisition of fears in their children. Although the limited number of studies focusing on parental verbal information transmission has provided more insight into the verbal information pathway in the transmission of anxiety from parent to child, these studies only covered specific fear for novel animals.

To our knowledge, there are no studies that investigated the role of parental verbal information in the context of social fears. However, two studies investigated the role of verbal information from peers and unfamiliar adults in a social context. First, in a study by Field et al. (2003), peers and teachers provided 10-to-13-year-old children with positive, negative, or neutral information about three different social situations: public speaking, meeting a new group of children, and public eating. Children's social fear beliefs were measured before and

after receiving the information. Contrary to previous findings, children showed more social fear beliefs after receiving positive information and less social fear beliefs after receiving negative information (Field et al., 2003). A possible explanation for these findings could be the influence of children's earlier social experiences and the complexity of peer relations in this age range. Second, Lawson et al. (2007) found that the change of children's fear beliefs was dependent on the type, source, and mode of fear presentation in 6-to-8 and 12-to-13-year-olds. They found a significant effect of verbal threat information on the explicit and implicit fear beliefs of the 12-to-13-year-olds. This effect was independent of the source of the information. In conclusion, there are varying results for the effect of verbal threat information on children's social anxiety and further research is needed to investigate this effect on children in a social context.

Another aspect that remains to be further explored is the influence of temperamental anxiety dispositions of children, such as child anxiety and behavioral inhibition (BI), which is a temperamental predisposition to react to novelty with fearful and avoidant reactions. In this context, it should be noted that constructs of child anxiety and behavioral inhibition are sometimes used interchangeably in literature to describe the temperamental anxiety dispositions of children and are investigated in separate studies. Field and Price-Evans (2009) found that the effect of verbal threat information on the physiological fear response of children was especially present in high behaviorally inhibited children. Field (2006a) reported stronger attentional biases induced by threat information among high behaviorally inhibited children. However, only one study looked into temperamental anxiety dispositions in a social fear context, and this study did not find a significant moderation of verbal threat information by pre-existing social anxiety levels of the child (Lawson et al., 2003). Thus, the pre-existing social anxiety of the child is a relevant factor to examine as it is yet unclear what its role is in the study of fear learning through parental verbal information.

Despite the alleged role of attention in the development of SAD, only a minority of the studies investigated the effect of verbal threat information on children's attention. Evidence suggested that verbal threat (versus safe) information can induce attentional biases, increasing anxiety in children (Mathews & MacLeod, 2002). Field (2006a) investigated this by providing 7-to-9-year-old children with negative, positive, or no information about three novel animals. The results showed that children acquired an attentional bias toward the animal they received the verbal threat information about, and that child anxiety facilitated this attentional bias (Field, 2006a). Thus, it seems that verbal threat information can induce attentional biases toward novel stimuli in children and that child anxiety dispositions might moderate this effect. Therefore, the child's social anxiety levels may moderate the effect of parental verbal threat information on children's attention in a social context.

In conclusion, earlier research provides preliminary support for the idea that verbal threat information from others influences children's attention (Mathews & MacLeod, 2002; Field, 2006a). However, none of these studies looked at the effect of verbal threat information provided by the parents on the child's attention in a social context. In addition, the results of Field (2006a) suggested that the effect of verbal threat information on children's attention was more pronounced among children with high levels of anxiety (Field, 2006a). The role of pre-existing social anxiety levels of the child in the effect of parental verbal threat information about strangers on children's attention in a social context remains to be explored.

The current study aimed to investigate the effect of parental verbal expressions of threat/safety about strangers on children's attention to strangers. Based on the paradigm of Field (2008), this study exposed children to either negative or positive verbal information from parents. Children aged 9-to-14 years had to conduct a social performance twice in the presence of two different strangers. Before this, the parents provided the child with either negative or positive information about the stranger, who acted as a judge during the

performance. During the performance, the child's attention to the stranger was measured by observing the looks toward the stranger. Unlike Field (2008), unfamiliar strangers were the novel stimuli instead of animals, making it possible to bring a real-life social situation to the lab. Other than most previous studies, parents were the source of the verbal threat information because of the importance of parental factors in the development of SAD. In addition, the sample consisted of children who were 9-to-14 years old, which is a crucial age to investigate because of the presence of social evaluation fears and increasing social anxiety at that age (Westenberg et al., 2007; Spence & Rapee, 2016)

We aimed to answer the following research questions:

1. What is the effect of parental verbal (safe versus threat) information on children's attention to strangers? Based on earlier research (Field et al., 2003; Field & Lawson, 2003), it is expected that children who receive threat-related information about the stranger from their parents will show more attention toward the threatening stranger.
2. Is the effect of parental verbal (safe versus threat) information on children's attention to strangers moderated by the child's social anxiety? Based on literature suggesting the influence of child anxiety (Field 2006a), we hypothesized that the child's social anxiety moderates the effect of parental verbal expressions of anxiety on the child's attention toward the stranger. As such, children with high social anxiety levels would show greater attention to the stranger after receiving verbal threat information from their parents.

Method

Research design

The current study is part of a multi-method experimental study that investigated the influence of parental transmission of stranger anxiety on children's behavioral, physiological, and cognitive responses to strangers. The experimental manipulation was the parental verbal information that was either positive or negative. This thesis focused on the attention of the children toward the strangers. More specifically, the current study looked at children's attention toward strangers during the presentation, after they received negative or positive information about that stranger from their parent. The study has been ethically approved by Leiden University Psychology Ethics Committee (Cep19-0219/96).

Participants

The sample consisted of 75 Dutch children (39 girls and 36 boys) aged nine to fourteen years old (Mean age = 11.51, SD= 1.15) and their parents. The families were recruited for this study via Facebook advertisements and distributed flyers at primary schools. Through these recruitment materials, interested families were invited to join a study about shyness and self-confidence. Dutch and English-speaking children between nine and thirteen and a half years of age and their parents were included in the study. Some children were older than 13.5 at the time of lab visit, as there was a delay in testing due to the COVID-19 pandemic. The parents came from a moderate-high socioeconomic background and were generally highly educated (see Table 1 for sociodemographic information of the parents).

Table 1

Sociodemographic information of the parents

	Frequencies (%) *Mothers*	Frequencies (%) *Fathers*	Total (%)
Dutch origin	59 (84,3)	49 (98,1)	108 (86,4)
Biological parent	59 (92.2)	48 (88.9)	107 (90,7)

Educational level			
High school or associate degree	15 (21,7)	18 (31,6)	33 (26,2)
Bachelor's degree	29 (42)	18 (31,6)	47 (37,3)
Master's or doctoral degree	23 (33)	20 (35,1)	43 (34,1)
Working status			
Full-time	14 (10.9)	43 (75.4)	57 (44,9)
Part-time	45 (35,2)	11 (19.3)	56 (44,1)
Unemployed	1 (1,4)	1 (1.8)	2 (1,5)
Other	7 (10)	2 (1.6)	9 (7,1)

Procedure and measures

The study consisted of two phases: online questionnaires and a lab visit. First, participating children and parents received a link to several online questionnaires that included measures of child anxiety and the informed consent form. The current study used the SCARED questionnaire. The children then visited the Leiden University Treatment and Expertise centre (LUBEC) with their primary caregiver.

Screen for Child Anxiety Related Disorders (SCARED)

Child social anxiety was measured with the Screen for Child Anxiety Related Disorders questionnaire (SCARED) (Birmaher et al., 1997). The SCARED questionnaire is reliable and validated to measure pediatric anxiety disorders (Rappaport et al., 2017). This questionnaire contains 41 items that are rated on a three-point scale. For the current study, our interest was the 7-item subscale for social anxiety. An example of an item of the social anxiety subscale for the child in this questionnaire is: "I feel nervous with people I don't know well". For the parent, this item corresponds with: "My child feels nervous with people

he/she doesn't know well". On the three-point scale, the parent or child could choose between "Not true or hardly ever true", "Somewhat true or sometimes true", or "Very true or often true". Child reports were used because evidence suggests that children provide more reliable answers on this topic than their parents (Stallings & March, 1995). In the current study, the SCARED had an internal consistency of $\alpha = .86$.

Lab visit

Shortly after the primary caregiver and their child arrived at the lab, the caregiver was debriefed about the real purposes of the study in a separate room and was asked to refresh their consent. The caregiver was told that the study is actually looking at how positive or negative verbal comments from parents affect their children's reaction to strangers in a social situation. While the caregiver was debriefed in a separate room and asked to refresh consent, the child was reading a book in the main room. The parents were instructed to tell their child that they had seen the judges and to give their child specific information in a naturalistic way about them while pointing at pictures of the judges.

Experimental manipulation. After the parent is back with the child, the experimenter informed the child about the social performance and the two judges watching the performance. Then the experimenter left the room, and the child had time to prepare for the social performance with their parent. During this preparation phase, the parent verbally provided the information about the two judges to their child. About one judge, the parent said that she was very sweet and that everyone liked her, and about the other judge, the parent said that she was very strict and that nobody liked her. After the preparation phase, the child began the social performance in a separate room with the judge.

Social performance. The social performance task consisted of a 2.5-minute talk about shyness and confidence in front of each judge separately. During the task, the child was also presented with a live projection of him- or herself on the wall. The child's attention was

observed during this social performance. The judges were blind to the conditions and were told to appear neutral toward the child during the social performance task. The order in which the child saw the positive or the negative judge was counterbalanced.

Child's attention

The child's attention toward the stranger was measured by observing video recordings of the social performance. During the presentation, the stranger was facing the child at an angle of approximately 45 degrees on the child's left. The duration of the child's gaze to the stranger was coded. For both judges, the duration of the gaze was coded in six epochs of thirty seconds each, beginning at the start signal for the social performance and ending after the end signal of the experimenter. The coding was performed by three trained coders who were blind to the condition. To determine inter-rater reliability, all three coders coded 20% of the sample (N= 75). The mean inter-rater reliability was .98 and .99 for judge 1 and judge 2, respectively.

Statistical analyses

The data from this study is statistically analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 27.0. First, we tested the effect of the verbal manipulation on attention in a repeated one-way ANOVA with the condition (safe versus threat) as the independent variable and the mean attention as the dependent variable. The scores on the child's attention were obtained by computing mean scores for the duration of looks to the stranger separately for the strangers paired with the safe and the threat condition. The moderating role of the child's anxiety was tested in an ANCOVA with the condition (safe versus threat) as independent variable, the child's attention as the dependent variable, and the child's social anxiety as a covariate. The main effect of the child's social anxiety on the child's attention was tested in this model to see if the child's social anxiety could predict the child's attention regardless of the condition. The child's social anxiety scores were obtained

by computing a mean score of the social anxiety subscale of the SCARED from the child's report.

Results

Preliminary analyses

The distributions of the variables indicated sufficient normality (skewness & kurtosis with an absolute z-value <3.29). Levene's test showed equal variances for the verbal threat information (F (1, 66) = .00, p =.998) and verbal safe information (F (1, 67) = .04, p = .839). Thus, the assumptions of normality and homogeneity of variances were met. Raw associations between attention in the safe and threatening conditions and the child's anxiety scores are presented in Table 2. A significant correlation (r = .859) between attention in safe and threatening conditions was found, indicating a strong positive association between the child's attention in the two conditions. The possible moderator variable child social anxiety did not significantly correlate with attention in the threatening (r = -.11) or safe (r = -.16) condition.

Table 2
Correlations between attention and child social anxiety scores

		Attention threat condition	Attention Safe condition	SCARED social anxiety scores
Attention threat condition	Pearson correlation Sig. (2-tailed)	1	.859** <.001	-.110 .389
Attention Safe condition	Pearson correlation Sig. (2-tailed)	.859** <.001	1	-.167 .187
SCARED social anxiety scores	Pearson correlation Sig. (2-tailed)	-.110 .389	-.167 .187	1

** Correlation is significant at the 0.01 level (2-tailed).

The effect of manipulation on attention

The effect of the manipulation on attention was not significant (F (1,67) = .01, p = .909, η^2 = .00, (1-β) = .05). Thus, children's attention toward the stranger did not significantly differ between the safe condition (M = 9.70, SD = 5.92) and the threatening condition (M = 9.74, SD = 6.08). To conclude, the content of the verbal information that the children received from their parents did not influence the child's attention toward the strangers during the social performance.

Moderation by child social anxiety

Next, the potential role of child social anxiety sensitivity was investigated in a Repeated Measures ANCOVA. The interaction between the manipulation and the child's social anxiety was not significant (F (1,61) = .62, p = .431, η^2 = .01, (1-β) = .14). Thus, the effect of the manipulation was not dependent on the child's social anxiety. We conclude that the effect of parental verbal information on the child's attention toward the stranger was not moderated by the child's social anxiety. The main effect of the child's social anxiety was also not significant (F (1,61) = 1.31, p = .257, η^2 = .02, (1- β) = .20). Thus, no significant association was found between the child's social anxiety and the child's attention in response to this social situation. In other words, children's attention toward strangers could not be predicted by the measured levels of social anxiety.

Discussion

The current study aimed to investigate the effect of exposure to parental verbal threat information about strangers on children's attention. Based on earlier evidence suggesting the influence of child anxiety on the verbal transmission of fear (Field et al., 2006a; Field & Price-Evans, 2009; Murray et al., 2014), the potential role of child social anxiety was also explored. Specifically, we tested whether the effect of parental verbal information was more

potent in children with high social anxiety levels. Overall, the findings revealed no significant effect of parental verbal information on the child's attention. The results also indicated no significant association between the child's social anxiety and the effect of verbal information on the child's attention.

Thus, based on our results, parental verbal threat information about strangers seems to have no influence on children's attention toward strangers. This finding is not in line with earlier evidence from Field (2006a), suggesting that verbal threat information can induce an attentional bias to novel animals in children. The deviating findings of the current study could be explained by differences between the design of the study of Field (2006a) and that of the current study. The current study was the first to use strangers as novel stimuli in the study of the verbal transmission pathway. Field et al. (2006a) used novel animals as stimuli and linked threatening properties to the animal with negative information such as "the animal is very dangerous, loves to eat raw meat and likes to drink blood". The negative value of this information differs from the information used in the current study as the information about the novel animals is more life-threatening to the child. The information about the strangers in the current study was related to fear of social evaluation rather than fear of survival and death. The results of Field et al. (2006a) showed that the extent to which the threatening stimuli received attention was directly mediated by the extent to which the negative information imbued the animal with threatening properties (Field et al., 2006a). Since the threat information in the present study differed in nature and negative value from the information used in the study of Field (2006a), these differences might have led to the strangers being imbued with less threatening characteristics, which in turn might have led to the child paying less attention to the stranger.

Another possible explanation for the results of the current study could be the attitude of the strangers not matching the child's expectations. Although the strangers were blind to

the condition (safe versus threat) and had a neutral attitude during the social performance, there could have been a discrepancy in the child's expectations and the child's actual experience with the strangers who acted neutral. In the case that the child was anxious about performing for the negative stranger beforehand but did not subsequently have an actual negative experience with the stranger, this may have influenced the effect of verbal threat information. The expectations of the child may have been adjusted because the child expected an unfriendly stranger, but the stranger turned out to be kind/neutral. Therefore, a suggestion for future research is to investigate the effect of negative and positive verbal information paired with a real-life encounter that is positive, negative, or neutral. In short, in the current study, the child's expectations may have been adjusted to the real-life experience with the stranger so that the verbal threat information had a not measurable or no effect on the child's attention.

Finally, the difference in results compared to other studies may be explained by the fact that the information was communicated by parents in the current study rather than by peers (for example, Field et al., 2003). Although parents have a significant influence on the social development of children throughout their late childhood and adolescence (Miller & Coll, 2007), it could be that the child considers parents' information about social situations less important than the opinions of peers. The importance of parents' opinions decreases in early adolescence while the importance of peers' opinions increases (Wang et al., 2007). This is partly because, compared to their childhood, adolescents are commonly spending less time with their parents and increasingly more time with peers (Wang et al., 2007; Richards et al., 2002). This could mean that the children in the current study attached less value to their parent's opinion, which may have made the child less convinced by the negative information about the strangers.

The current study also did not find evidence for a significant moderating role of child social anxiety on verbal transmission of anxiety as suggested by earlier studies (Field et al., 2006a; Field & Price-Evans, 2009; Murray et al., 2014). Based on earlier evidence on parental verbal information, we hypothesized that the effect of parental verbal threat information on children's attention is especially expressed in children with high social anxiety levels. The result of the current study is not in accordance with Field et al., (2006b), who found that child anxiety in children aged 6-to-9-years old moderates the effect of verbal threat information on children's attention. A possible explanation for the divergent results of this study compared to the results of Field et al. (2006b) might be the influence of the child's age, as the children in the current study were 9-to-14-years old. This perhaps suggests that the effect of child social anxiety on children's attention is particularly present up to a certain age and thus could not be detectable in the current study. For example, the results of a cross-sectional study that measured BI in different age groups suggest that the BI system may become less responsive with age (Jorm et al., 1998). Concisely, investigating the effect of pre-existing child social anxiety levels on verbal transmission of social anxiety in different age groups might prove important in future work. In conclusion, the current study found no evidence for a significant moderation of parental threat (versus safe) information by child social anxiety, as earlier research suggested. This could be explained by differences in the ages of the children between the present study and previous studies (Field et al., 2006b).

Future research should consider including different age groups into the design to investigate whether the potential moderation effect of parental verbal threat information by child anxiety dispositions becomes less pronounced with age. Another factor that may be relevant to include in future research is the extent to which a child has previously been exposed to stressful situations with a social element (e.g., family fights) as this may contribute to associating social stimuli with threat (Wong & Rapee, 2016). Thus, investigating the role

of child social anxiety on the effect of verbal threat information in different age groups and including child characteristics such as earlier exposures to stressful social situations would possibly increase the sensitivity to threat information on children's attention (aged 9-14 years).

Although the current study had several strengths, including a reliable measurement of child attention during the social performance instead of using a computerized task that measures attentional biases, as most earlier studies did (e.g., Field et al., 2006a), the following limitations should be considered while interpreting the results of the current study. First, the sample may have been biased because the recruitment materials described the study as being about shyness and confidence. This may have prevented socially anxious parents or children of those parents from participating in the study because the parents were afraid it would create an unpleasant experience for their child. Another limitation concerns the homogeneity of the sample. The study's sample primarily consisted of highly educated Caucasian families, which makes the results less generalizable to the general population. In addition, this study used a community sample, and thus the results cannot be generalized to a clinical sample.

Conclusion

The current study is one of the first studies that examined the effect of verbal threat information provided by parents on their children's attention toward strangers in a social situation. The results suggest that parental verbal threat information does not influence children's attention toward strangers. Future research is necessary to find out what factors determine whether verbal threat information causes an attentional bias in a social context. In addition, it should be investigated whether an attentional bias caused by verbal threat information (as in the study by Field et al., 2006) leads to anxiety in both clinical and non-clinical samples. Finally, future investigations on the role of child characteristics in the verbal

information pathway of social anxiety might extend the explanations of individual differences.

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