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Growing up to be fearful? Social evaluative fears during adolescence

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CHAPTER 7

Summary and Conclusion

The current thesis was written as part of the Social Anxiety and Normal Development study. The main focus of the thesis was to investigate the normative developmental pattern of social fears. For this reason a large sample of 9 to 17 year olds were asked to report on social fears using different questionnaires. In addition to questionnaires a behavioral assessment test was included as well to measure different components related to fear, subjective experience and physiological responses. Because available research indicated that an age related increase might be specific for social evaluative fears, rather than social fears in general (Westenberg, Drewes, Goedhart, Siebelink, & Treffers, 2004), all participants were exposed to a public speaking stressor specifically designed for the current study.

Furthermore, as age can best be considered a proxy of development, additional measures of development were included in the study (e.g., pubertal, cognitive, and psychosocial development). By including these developmental variables it is possible to understand why some changes occur at a particular age or rather time of development. Note, that it was not possible to study all developmental variables in relation to social fears within the scope of the current thesis. The current thesis was able to assess the relationship between pubertal development and social fears.

Part I. Growing up to be fearful?

The main question posed in the first three chapters was whether adolescents grow up to be more fearful of social situations. This was studied for distress and avoidance in different social situations (Ch. 2), for subjective nervousness and physical responses in a public speaking task (Ch. 3), and through an assessment of the public speaking experience in general (Ch. 4).

Chapter 2. One of the main aims of Chapter 2 was to uncover whether different types of social fears show different developmental patterns. The results of several earlier studies on age differences in social fears were mixed. Following Westenberg et al. (2004) it is suggested that it might be necessary to make a distinction between different social fears, because when no distinction is made the developmental pattern becomes indistinct. Thus, Chapter 2 investigated age differences in reported distress for various social situations.

In addition to distress in social situations in general, situations were categorized in three categories, namely formal speaking and interaction situations (e.g., speaking in public), informal speaking and interaction situations (e.g., parties) and observation by others (e.g., walking in hallways). The study provided evidence that age differences are dependent on the type of situations that are studied. Thus, in line with earlier studies (e.g., Westenberg et al., 2004, Gullone & King, 1993) general levels of distress concerning social situations did not show age related changes, but distress in formal speaking and interaction situations did.

Furthermore, Rapee and Spence suggested that the increase in social phobia prevalence rates might be mainly due to changes in life interference. Interference refers to the effect of experienced distress on youth's functioning and was operationalized as avoidance. To test this assumption Chapter 2 also investigated age differences in avoidance. This was done as follows, participants were asked to indicate whether they avoided or would like to avoid the same social situations as described above. These results partly support Rapee and Spence's suggestion, with increasing age youth reported more avoidance and the age effects were pronounced in comparison to those observed for distress.

In short, Chapter 2 showed that adolescents became more fearful of social situations. At the same time, the findings underlined the need to distinguish

between different types of social fear when studying developmental patterns and to assess avoidance in addition to distress.

Chapter 3. To follow-up on the age differences in self-reported social fears, Chapter 3 investigated whether these age differences would translate to increased stress responses during an actual social evaluative stressor, a public speaking task. The paper provided evidence that speaking in public resulted in stronger physical responses as measured by cortisol and alpha-amylase throughout adolescence. In contrast age differences in self-reported nervousness during this task did not emerge. Our results - both the presence of stronger physical responses and the absence of higher levels of reported nervousness - were in line with two recent studies, this is Gunnar, Wewerka, Frenn, Long, and Griggs (2009) and Stroud et al. (2009). These studies however were unable to make a detailed account of age differences, because of relatively small samples.

Notably, the Leiden PST allowed a more detailed investigation of the age differences that were observed. A distinction could be made between age difference in anticipatory responses to the speech and responses as a result of actually giving the speech. As hypothesized, the increase in biological reactivity was most pronounced during the anticipation stage.

Another central element of the current thesis was to investigate developmental variables in addition to age to better understand the normative changes in social fear that are observed during adolescence. Chapter 3 focused on the effect of pubertal development which has often been put forward as an instigator of a time of increased stress sensitivity (e.g., Dahl, 2004, Dahl & Gunnar, 2009). Many studies have looked at puberty in relation to depression and risk behavior (e.g., Angold, Costello, & Worthman, 1998, Steinberg, Dahl, Keiting, Kupfer, Masten, & Pine, 2006), but in relation to social fears only few studies are available. The effects of puberty observed in chapter 3 were in line with age, but not stronger than the age effects.

Although further studies are necessary to study the relationship between puberty and social fears in depth, it is clear that other developmental variables should be studied as well to better understand age differences in social evaluative fears.

Chapter 4. In this chapter the public speaking experience during adoles-

cence was studied in more detail. The self-report study (Ch. 2) and the behavioral assessment study (Ch. 3) with the Leiden PST have shown that public speaking situations are particularly distressing. At the same time little is known about how adolescents view these situations. Topics that we still knew little about included: which elements do adolescents think are important, how they expect to be evaluated, and whose opinion they feel is most important? Do they expect to do well; do they have negative thoughts about their performance that haunt them? Thus, Chapter 4 painted a broader picture of public speaking during adolescence

Additional support was presented for an adolescence bound increase in public speaking apprehension. The older adolescents expected to be evaluated more negatively than the younger children. In addition, the older children had less positive and more negative thoughts in the week following the speech. The increase in negative expectations before and negative thoughts after social situations could be a contributing factor to the rise of social fears. However, future studies are needed to test whether there is a relationship between these variables and the direction of causality.

This chapter also assessed more general aspects of the public speaking experience through open-ended questions. The findings showed that although adolescence is a time of increasing autonomy, youth are not insensitive to the opinion of others. For example, the study showed that to decide how well they had performed adolescents used their own impression on how well it went (i.e., comparisons to personal standards), but also took into account feedback they received from the audience (i.e. use of external standards). Furthermore, no age differences were observed in the importance of peer opinion, while their own opinion became more important to them over time.

During adolescence the social field changes and youth might struggle to combine diverse expectations (i.e., their own and those of others) in social situations. Awareness of these diverse expectations might be a reason why adolescents come to report more distress during public speaking. The findings from this chapter and their possible relationships with social fear need to be explored further.

General conclusion – Part I

The current thesis has provided support for the main question posed at the beginning of this thesis, this is adolescents seem to grow increasingly more weary of social situations. This increase seems to be specific for social-evaluative situations rather than social situations in general.

An unanticipated finding that emerged from both Chapter 3 (stress reactivity) and 4 (public speaking experience) is the fact that anticipation to social-evaluative situations seems to be particularly sensitive to developmental differences. Developmental differences in physical responses were most pronounced in anticipation to the speech (Ch. 3) and it was only the week before the speech that older subjects reported more negative expectations than their younger counterparts (Ch. 4). It is recommended that future studies of social fear pay particular attention to the feelings of anticipatory fears.

The finding that self-reported nervousness showed no age related increase in Chapter 3 (see also Gunnar et al., 2009, Stroud et al., 2009) is somewhat in contrast with the self-reported trait levels of distress presented in Chapter 2. It is unclear why age differences were present in distress for formal speaking and interaction situations, but not during the assessment of state nervousness during the speech task. This might be linked to the fact that age differences were more pronounced in absence of the stressor (i.e., anticipation). Due to cognitive advances adolescents become more able to worry about abstract ideas than children, whereas when directly confronted with a social evaluative situation this is experienced as equally stressful by children and adolescents. At the same time Chapter 2 also highlighted that it is important how questions are framed, namely effects for avoidance were stronger than for distress. Thus it might be necessary to develop indirect measures for use with the Leiden PST that are more sensitive to developmental differences.

Although most findings seem to indicate that the rise in social fears is specific for social-evaluative situations, future studies would benefit from contrasting the Leiden PST with a social interaction task.

Part II. Psychosocial Maturity: Instrument Development

Puberty has been thought to be the causal factor for age differences observed in social fears. For this reason the effect of puberty was tested in Chapter 3. However, although puberty was related to increased biological responses during the Leiden PST, the effects were less strong than might be expected. This finding shows that it is necessary to study other developmental variables to understand the normative rise in social-evaluative fears. Psychosocial development might be a prime candidate to research in combination with social fears. Adolescents are thought to become more considerate of others (Caffman & Steinberg, 2000) which would affect decreases in problem behavior, but possible increases in social fear. At the same time adolescents were thought to be particularly sensitive to peer opinion (Steinberg & Silverberg, 1986), creating a vulnerability to social fears.

Instruments had to be developed for use in the SAND study to investigate the relationship between psychosocial development and social fears. An account of those instruments is provided below.

Chapter 5. In Chapter 5 the psychometric properties of the Dutch translation of the Self-Restraint Scale (SRS; Weinberger & Schwartz, 1990) were investigated. Self-restraint is considered a central element of the psychosocial maturity model of Caffman and Steinberg (2000), in particular they used impulse control and consideration of others as maturity indices. For the current study the Dutch translation made by Vazsonyi, Pickering, Junger, and Hessing (2001) had to be adapted for use with younger children (9-10 years old). The new Dutch SRS was tested in a separate sample of 481 ten to eighteen year olds. The factor structure of the scale observed in this study differed from the original of Weinberger (1997). A three-factor structure was proposed as a better solution than the four-factor structure in the Dutch sample of youth, aged 10 to 18 years. A distinction was made between suppression of aggression, impulse control and consideration for others. The two maturity indices proposed by Caffman and Steinberg (2000) emerged and can be further investigated. In future research developmental patterns of impulse control and consideration of others will be investigated. In relation to social fears, it might be expected that children who report high levels of consideration of others might be more sensitive to experience social fears.

Chapter 6. Another important element of adolescent psychosocial development is the attainment of autonomy, which would result adolescents becoming more resistant to the influence of others. In Chapter 6 psychometric properties and age differences were investigated in relation to the Resistance to Peer Influence scale (RPI). Following the original publication (Steinberg & Monahan, 2007) a one factor structure was confirmed and the reliability of the scale was good. For a long time researchers assumed that sensitivity to peer influence would show an U-shaped developmental pattern, with mid adolescents being most sensitive (Berndt, 1979; Steinberg & Silverberg, 1986). These assumptions were based on studies that did not distinguish between resistance to peer influence in general and in anti-social settings. In contrast to this literature, in the study presented in this paper adolescence did not appear to be a period of temporary increased sensitivity to peer influence. Rather, during adolescence youth became better at resisting peer influence. This finding fits well with existing literature about adolescent psychosocial development and the increase in autonomy.

In addition to the age related increase, the developmental pattern differed between boys and girls. The study showed that girls were ahead of boys in their development, reporting to be more resistant than boys during mid-adolescence. This finding is in line with gender differences observed in ego development. Cohn's meta analysis showed that girls are approximately 2 years ahead of boys and boys catch up at the end of adolescence. The RPI showed a similar maturity gap between boys and girls. A similar finding was presented by Klimstra, Hale III, Raaijmakers, Quinten, Branje, and Meeus (2009) who found that girls were faster than boys in all aspects of personality development.

Development and the emergence of social fears

Coming back to the original model presented in Chapter 1 it is possible to say something about some of the pathways but not all. For instance, there is a relationship between age and social evaluative fears and a relationship between puberty and social evaluative fears. These relationships were in the expected direction; thus, in answer to the main question posed in this thesis it emerged that social fears increased with increasing development. At the same time, the effect of pubertal development was more modest than expected. Because the

focus of the current thesis was on age and puberty it was not yet possible to study the effects of other developmental variables. As discussed in the introduction, it will be necessary to study the effects of cognitive and psychosocial development.

On the one hand it will be necessary to study the direct effects of these developmental variables on social fears. However, some developmental changes, like increased resistance to peer influence, would more likely effect a decrease in social fears during adolescence. To understand these seemingly modest and possibly contrary effects, it is important to realize that there are variations in the speed of development of different aspects of adolescent development both within and between individuals.

These variations in speed of development are also observed in adolescent brain development. Several researchers have commented on the effect of a mismatch between the development of different brain regions during adolescence (e.g., Nelson, Leibenluft, McClure, & Pine, 2005, Ernst, Pine, & Hardin, 2005, Steinberg, 2005). During adolescence it appears that the limbic structures which are responsible for affective responses develop more quickly than the pre-frontal structures which are responsible for the regulatory functions. As a result adolescents become more vulnerable to different problems, including alcohol abuse, risk taking and emotional disorders (Steinberg, 2005).

This mismatch might also explain the increase in social fears and prevalence of social anxiety disorder; however no studies have investigated this relationship.

To get a complete picture of the role development plays in the increase of social fears, it is important to include a variety of developmental variables. The upcoming longitudinal studies will be able to provide conclusive evidence for the full model presented in Chapter 1. Whereas puberty would result in stronger affective response, it is important to also include variables that can be viewed as indices of the more regulatory capacities that might temper those responses. It can be tested whether discordance between supposedly parallel developmental variables, for instance pubertal development and resistance to peer influence, explains the emergence of social fear during adolescence. These combinations of different developmental variables might be able to explain more variance in social fears than each variable in and of itself.

The next step: When normative social fears deviate

Recent developments in the field of adolescent developmental psychopathology have shown that there is a need for interactional models (e.g., Windle et al., 2008, Allen & Sheeber, 2008). Taking into account the individual variation in the timing of different developmental variables as discussed above might in combination with other variables be a risk factor to develop deviant levels of social anxiety. Most models on social anxiety to date focus only on individual differences and do not include development, whereas pathways of social anxiety might be partly determined or depend on development, individuals' environment, genes/temperament, and interactions between all.

There are several important variables to consider in regard to social fears. For example, certain personality characteristics, for example introversion; entry into this developmentally sensitive period might make introverted youth particularly vulnerable to experience social fears during adolescence. This could mean that normative developmental effects might tip the balance for the worse in youth with a particular personality make up.

Similarly, Allen and Sheeber (2008) emphasize the need for cross-disciplinary research to better understand the development of depression during adolescence, for this purpose it is necessary to study "the interaction between environmental factors, individual differences, and biological maturation" (p.342). The tipping point model by Dahl (e.g., Dahl & Hariri, 2005) seems to be sensitive to the complexity of adolescence. This model proposes that there is a precarious balance during adolescence which can be disturbed quite easily by seemingly minor changes.

For example due to the increased importance of peers during adolescence, a supportive environment might be particularly important. Recent studies by Blöte et al. have shown that socially anxious adolescents are treated differently by their classmates (e.g., Blöte, Kint, & Westenberg, 2007, Blöte & Westenberg, 2007). Furthermore, correlations have been observed between social fear and social support (Bokhorst, Blöte, Sumter, & Westenberg, 2009). Although these studies were not able to address causal relationships, it could be expected that when confronted with a negative environment or limited social support the precarious balance of adolescents might be disturbed for the worse would

trigger deviant development of social fears. At the same time perceiving high social support could be particularly beneficial during adolescence.

Thus, the knowledge we have gained about the normative pattern of social fears could be interpreted as a cautionary tale. Most models that have studied the development of social anxiety have focused on individual differences and do not take into account development (e.g., Rapee & Spence, 2004). However, especially during adolescence, individual differences might play their part and lead to the development of social anxiety disorder. For this reason, it is important that future studies investigate the influence of individual difference variables, like temperament and environment, in combination with developmental variables on the developmental pathway of social anxiety.

