

INDIVIDUAL DIFFERENCES IN ADULT CRYING: THE ROLE OF ATTACHMENT STYLES

ANJA J. LAAN

Reinier van Arkel Groep, The Netherlands

MARCEL A. L. M. VAN ASSEN AND AD J. J. M. VINGERHOETS
Tilburg University

We carried out 2 studies to evaluate the relationship between attachment style and crying in adults. Data were collected from 2 independent large samples, measuring as 2 different operationalizations crying in general and in response to music. The results in both studies showed a consistent pattern. As anticipated, the group with a dismissive attachment style cried less than the other groups, and the preoccupied attachment style group cried more intensely than the secure group. The preoccupied and fearful attachment style groups reported the most negative emotions while crying, whereas the secure group reported more crying over positive emotions. These results show that attachment style is a determinant of adult crying behavior.

Keywords: adult crying, attachment style, music, emotions.

Shedding emotional tears is a typically, and probably even uniquely, human emotional expression that originates from the separation calls designed to maintain maternal-offspring contact in all mammals and birds (Vingerhoets, Bylsma, & Rottenberg, 2009). Crying is considered the earliest and most basic mammalian vocalization (Newman, 2007). Because infant crying also serves to call for and assure the protective and nurturing presence of caregivers (Bowlby, 1982; Hendriks, Nelson, Cornelius, & Vingerhoets, 2008), it is regarded as an inborn attachment behavior. According to Bowlby (1982), crying continues to be an attachment behavior throughout life. In the present study we specifically address adult crying and how this relates to attachment style.

Anja J. Laan, Reinier van Arkel Groep, The Netherlands; Marcel A. L. M. van Assen, Department of Methodology and Statistics, Tilburg University; Ad J. J. M. Vingerhoets, Clinical Psychology Section, Tilburg University.

Correspondence concerning this article should be addressed to: Anja J. Laan, Reinier van Arkel Groep, PO Box 70058, 5201 DZ 's-Hertogenbosch, The Netherlands. Email: a.laan@rvagroep.nl

There are considerable individual differences in adult crying in relation to frequency and the reasons behind the action. For example, in a diary study of 286 females and 45 males, Frey, Hoffman-Ahern, Johnson, Lykken, and Tuason (1983) reported an average emotional crying frequency of 5.3 times per month for women (range 0-19), whereas for men this average was only 1.4 (range 0-4).

Regarding the kinds of stimuli that make people cry, there are strong emotional situations, like death and romantic breakups, but these situations are rather uncommon. Crying mainly occurs for everyday and rather mundane reasons that have been observed to vary in impact from one individual to another. In a given context, some people will cry, others will not. In a different situation this may be reversed (Vingerhoets, Boelhouwer, Van Tilburg, & Van Heck, 2001).

It is not clear which specific factors contribute to, or determine, these individual differences in crying, but there is substantial evidence that gender, personality traits (more specifically, neuroticism and empathy), and social learning are relevant (Vingerhoets et al., 2009). In addition, abuse of alcohol or drugs, physical and psychological state, being in a romantic relationship, and having experienced a traumatic event or life-threatening disease may all influence an individual's crying behavior (Vingerhoets et al., 2009). Furthermore, attachment style might be an important factor in this behavior.

Among others, Bartholomew and Horowitz (1991) have specifically examined the relationship between attachment style and crying frequency. They found a rather low crying frequency for individuals with a dismissive attachment style and an increased crying frequency for preoccupied individuals, with secure and fearful individuals in between these two extremes. However, first, it is not clear how crying frequency was defined and measured in this study and, secondly, the sample sizes in this study were small (ranging between 11 and 16 for the insecure groups and 36 for the secure group).

Nelson (2005, 2008) has further elaborated on Bowlby's idea that crying maintains its function as an attachment behavior throughout the life span. She points out possible links between crying and attachment style. Securely attached individuals generally feel comfortable experiencing and expressing emotions and feel no need to avoid, suppress, or deny emotions (Mikulincer & Shaver, 2007). These individuals may cry more often than dismissively attached persons but less often than individuals with a preoccupied attachment style (Bartholomew & Horowitz, 1991). When individuals who are securely attached cry, this might be considered as normal and healthy (Nelson, 2008). In contrast, insecure attachment is thought to wire in a vulnerability to inappropriate crying and not being able to heal from pain (Fosha, 2010; Nelson, 2008). Nelson (2000) also suggested a link between insecure attachment and so-called protest crying, a state in which adults feel desperate for the reassuring presence of their attachment figures, but insecure

about their accessibility and availability. Their crying is typically easily activated but difficult to soothe and may elicit irritation or apathy instead of sympathy.

Nelson's (2005, 2008) ideas coincide with the relationship suggested by Mikulincer and Shaver (2007) between attachment style and emotion regulation. According to these authors, individuals with a preoccupied attachment style tend to use a hyperactivating attachment strategy of negative emotions, whereby they subjectively appraise an internal or external event as a threat. They intensify emotions such as jealousy and anger, that call for attention and care, or emotions such as sadness, anxiety, fear, and shame that implicitly emphasize vulnerability and neediness. Their level of attachment anxiety is high and they have a low threshold for crying (Nelson, 2008). The preliminary findings of Bartholomew and Horowitz (1991) confirm that these individuals do, indeed, cry more often than individuals with other attachment styles.

In contrast, dismissively attached individuals are thought to be more prone to so-called deactivating attachment strategies, in which emotions are inhibited and suppressed (Mikulincer & Shaver, 2007). Defensive inhibition is directed mainly at fear, anxiety, anger, sadness, guilt, and distress, because these emotions are triggered by threats and can cause unwanted activation of the attachment system (Mikulincer & Shaver, 2007). With respect to crying, this implies that these individuals shed emotional tears less frequently than the other attachment groups and are thought to inhibit their crying (Bartholomew & Horowitz, 1991; Nelson, 2005, 2008).

Finally, individuals with a fearful attachment style suffer from a breakdown of organized attachment strategies. This style is characterized by an avoidant, as well as an anxious, attachment pattern and both hyperactivation and deactivation of emotions may occur (Bartholomew & Horowitz, 1991). This characteristic style results from fear of the possible negative consequences of closeness to, and reliance on, others and, at the same time, those individuals with a fearful attachment style experience a high level of anxiety (Mikulincer & Shaver, 2007). No specific characteristic crying pattern has been reported for this group of individuals (Bartholomew & Horowitz, 1991). Mikulincer and Shaver (2007) noted that this group had the poorest mental health of all four attachment types they identified in their study and Shaver and Clark (1994) found that they were the most troubled.

Until now, except for the preliminary work of Bartholomew and Horowitz (1991), the relationship between adult attachment styles and crying has not been specifically addressed in an empirical study. The goal in the present study was to explore this relationship. Bartholomew and Horowitz (1991) focused only on crying frequency, but we also focused on proneness to cry, tendency, frequency, intensity, duration, inhibition of crying, positive and negative accompanying emotions experienced, and crying in response to music.

Researchers have found the relationship between music and crying behavior particularly interesting because music has been shown to be a powerful stimulus to evoke many kinds of emotions and can elicit tears (Juslin & Laukka, 2004). There is also evidence that listening to music can evoke emotions by triggering memories of past or current romantic partners (Baumgartner, 1992). Using music as the emotion-provoking stimulus thus offers a good opportunity to investigate the role of attachment styles in emotional reactivity and crying. In addition, given that the content of the lyrics also may induce emotional responses (Juslin & Laukka, 2004), it is relatively easy to describe and categorize the evoking stimuli into specific categories, more or less associated with typical attachment issues such as loss, conflict, reunion, and separation (cf. Spangler & Zimmerman, 1999).

In short, we hypothesized that individuals with a preoccupied attachment style would cry more frequently, be more prone to crying, have a higher tendency to cry (both in general and in response to music), have longer crying episodes, and cry more intensely (in response to music) in comparison to individuals with other attachment styles. In addition, we anticipated that, compared to those whose attachment style was either secure or preoccupied, individuals with a dismissive attachment style would report less crying (both in general and while listening to music). Moreover, compared to the other attachment groups, the dismissive attachment group would inhibit their crying more. For the fearful attachment group, no specific hypothesis was formulated, because for them there is no literature pointing out a specific crying pattern. Finally, we expected that for individuals with a preoccupied or fearful attachment style crying would be accompanied by more negative emotions than would be the case for securely and dismissively attached individuals. These hypotheses were evaluated in two separate studies.

Study 1

In this study the following hypotheses were evaluated: First, we expected the dismissive attachment group to report the least frequent episodes of crying and the lowest tendency to cry, and to have the shortest time and least intense experience of crying while listening to music, whereas the preoccupied attachment group was expected to display behaviors that were in complete contrast to all these aspects of crying. Second, we anticipated that preoccupied and fearfully attached individuals would have more negative emotions accompanying their crying while listening to music and in general would report a higher negative crying proneness than securely and dismissively attached individuals. Because crying frequency is known to differ considerably between men and women (see Vingerhoets & Scheirs, 2000, for a review), analyses were conducted separately for each gender.

Method

Participants. The participants were 1,146 men (37.8%) and 1,886 women (62.2%), who responded to an invitation posted on the website of the Dutch National Radio 2 to participate in a study on music, emotions, and crying. The average age of men and women in the sample was 37.9 ($SD = 12.4$) and 36.3 years ($SD = 11.9$), respectively. Highly educated individuals were overrepresented in the current sample, compared to the Dutch general population (51.8% versus 30%).

Measures.

Relationship Questionnaire (RQ) (Bartholomew & Horowitz, 1991). The Dutch translation of this measure by Verschueren and Marcoen (1993) was used to assess individual attachment styles. The RQ is a categorical measure of attachment styles, in which four attachment prototypes (secure, dismissive, preoccupied, fearful) are described. Respondents are asked to indicate which prototype best describes their experiences in a romantic relationship. Three-week test-retest correlations of the RQ showed sufficient stability ($r = .55$ for the secure type, $r = .64$ for the preoccupied type, $r = .76$ for the fearful type, $r = .64$ for the dismissive type; Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010; Sibley, Fischer, & Liu, 2005).

The Adult Crying Inventory—short version (ACI-S). This measure was developed by Vingerhoets (1995; see also Vingerhoets & Cornelius, 2001). It is a 25-item measure used to assess crying proneness ($\alpha = .84$). The respondent indicates the likelihood of shedding tears in response to a hypothetical situation or emotion that is described. The ACI consists of two subscales; positive crying proneness (7 items, $\alpha = .84$) and negative crying proneness (18 items, $\alpha = .92$). Two examples of situations included in the positive crying proneness scale are weddings and reunions, and examples of the negative scale items are funerals and situations in which feelings of despair are experienced. The participants rate their crying proneness for each situation on a 7-point Likert-type scale, ranging from 1 = *never* to 7 = *always*.

To assess their actual crying behavior, participants were asked (a) about their most recent crying episode (rated on a 7-point scale, ranging from 1 = *less than a day ago* to 7 = *more than a year ago*), (b) to estimate their crying frequency over the past 4 weeks, and (c) to rate their general crying tendency over the past 4 weeks (rated on a 10-point scale, ranging from 1 = *I hardly ever cry* to 10 = *I cry very often*). We also asked for detailed information about each participant's last crying episode while listening to music, including its duration (on a 6-point scale, ranging from 1 = *less than 5 minutes* to 6 = *short crying episodes that repeatedly return*) and intensity (rated on a 4-point scale, ranging from 1 = *only wet eyes* to 4 = *wet eyes, sobbing, loud crying, and body movements*). In addition,

participants indicated which of 17 emotions they had experienced (yes or no) during the time they last cried in response to music. Seven of the emotions can be classified as positive (relief, happiness, satisfaction, poignancy, ecstasy, walking on air, nostalgia), and 10 as negative (contempt, sadness, fear, humiliation, powerlessness, anger, disgust, guilt, frustration, defeat). If participants did not recall their emotions, they could indicate this by answering "Do not know".

Procedure and context. Each year in December, the Dutch National Radio 2 broadcasts the Top 2,000 Pop Chart. During the 2006 edition of this nonstop radio program lasting 6 days, visitors to the accompanying website were invited to complete our questionnaire, which they were told would take approximately 30 minutes.

Data analysis. We started with a test of the effect of gender on each separate emotion and crying variable for each of the attachment styles, using independent samples *t* tests. Then we conducted two-way analyses of variance (ANOVAs) for each dependent variable separately, with gender and attachment as independent variables. Because the homogeneity of variance assumption was not always established in our data we also conducted Brown-Forsythe and Welch one-way ANOVAs on the effect of attachment style. These two tests are robust to violation of the homogeneity assumption. Since the results of these two tests led to the same conclusions concerning the effect of attachment style, we report only the results of the two-way ANOVAs. A significant effect of attachment style was followed up with Games-Howell post hoc tests to identify for which groups significant differences were found. The Games-Howell procedure was applied instead of the more common Tukey procedure, because the assumption of homogeneity of variance was sometimes violated for the data and our sample sizes were large (for more details on the procedures used, see Maxwell & Delaney, 2004, pp. 212-213).

Results

Gender, attachment style, and crying. The distribution of attachment styles was 48.4% secure, 24.1% fearful, 10.2% preoccupied, and 17.2% dismissive. However, this distribution was different for men and women ($\chi^2_{(3)} = 73.5, p < .001$, Cramer's $V = .16$). The percentages for men (with results for women in parentheses) were 44.4 (50.8) for secure, 20.2 (26.5) for fearful, 10.9 (9.8) for preoccupied, and 24.4 (12.9) for dismissive.

The means of all crying variables for all attachment type and gender combinations are presented in Table 1. Each total column contains the results of one-tailed tests of the effect of gender on the crying variables for each of the four attachment styles. For each attachment style, women scored significantly higher than men on crying frequency (Cohen's *ds* from .54 to .67, corresponding to a moderate to large effect), crying tendency (*ds* from .61 to .73, moderate to large), crying proneness (total [*ds* from 1.02 to 1.30, large], negative [*ds* from 1.07 to

Table 1. Means of Crying Behavior According to Attachment Style and Gender in Study 1

	Secure				Fearful				Preoccupied				Dismissive	
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Men	Women	Total
	<i>n</i> = 509	<i>n</i> = 958	<i>N</i> = 1,467	<i>n</i> = 232	<i>n</i> = 500	<i>N</i> = 732	<i>n</i> = 125	<i>n</i> = 185	<i>N</i> = 310	<i>n</i> = 280	<i>n</i> = 243	<i>n</i> = 280	<i>n</i> = 243	<i>N</i> = 523
Crying frequency	2.11 (2.39)	3.58 (2.58)	3.07*** (2.61)	2.21 (2.35)	3.80 (2.65)	3.30*** (2.66)	1.99 (2.42)	3.67 (2.59)	2.99*** (2.65)	1.66 (2.14)	2.90 (2.50)	1.66 (2.14)	2.90 (2.50)	2.24*** (2.40)
Crying tendency	2.92 (2.30)	4.52 (2.38)	3.96*** (2.47)	2.88 (2.17)	4.51 (2.34)	3.99*** (2.41)	3.10 (2.35)	4.83 (2.39)	4.14*** (2.52)	2.27 (2.09)	3.79 (2.50)	2.27 (2.09)	3.79 (2.50)	2.98*** (2.41)
Last crying episode	3.31 (1.84)	2.25 (1.29)	2.62*** (1.58)	3.33 (1.84)	2.24 (1.29)	2.59*** (1.57)	3.33 (1.84)	2.32 (1.30)	2.73*** (1.63)	3.68 (1.93)	2.62 (1.48)	3.68 (1.93)	2.62 (1.48)	3.19*** (1.81)
Crying proneness	2.27 (.79)	3.35 (.86)	2.97*** (.98)	2.41 (.83)	3.31 (.91)	3.03*** (.98)	2.45 (1.01)	3.53 (.82)	3.10*** (1.05)	2.02 (.66)	2.94 (.90)	2.02 (.66)	2.94 (.90)	2.45*** (.90)
Crying proneness positive	2.36 (.96)	3.23 (1.11)	2.93*** (1.14)	2.29 (.93)	2.94 (1.07)	2.73*** (1.07)	2.32 (1.16)	3.02 (1.05)	2.74*** (1.15)	2.04 (.79)	2.70 (1.08)	2.04 (.79)	2.70 (1.08)	2.35*** (.99)
Crying proneness negative	2.23 (.81)	3.40 (.90)	2.99*** (1.03)	2.46 (.88)	3.46 (.96)	3.14*** (1.05)	2.50 (1.06)	3.74 (0.86)	3.24*** (1.12)	2.01 (.71)	3.04 (.94)	2.01 (.71)	3.04 (.94)	2.49*** (.97)
Crying duration while listening to music	1.20 (.73)	1.31 (.80)	1.27*** (.77)	1.29 (.77)	1.39 (.92)	1.36 (.87)	1.49 (1.02)	1.41 (.88)	1.40 (.94)	1.12 (.46)	1.24 (.78)	1.12 (.46)	1.24 (.78)	1.18* (.63)
Crying intensity while listening to music	1.41 (.66)	1.62 (0.69)	1.55*** (.69)	1.52 (.69)	1.68 (.76)	1.63** (.74)	1.63 (.75)	1.83 (.79)	1.75* (.78)	1.34 (.57)	1.53 (.65)	1.34 (.57)	1.53 (.65)	1.43*** (.62)
Last crying episode while listening to music	3.55 (1.94)	2.94 (1.70)	3.15*** (1.81)	3.63 (1.93)	2.90 (1.64)	3.13*** (1.77)	3.74 (1.91)	3.21 (1.80)	3.42** (1.86)	3.83 (1.99)	3.47 (1.92)	3.83 (1.99)	3.47 (1.92)	3.67*** (1.96)

Notes: Standard deviations in parentheses. Asterisks in the total columns correspond to one-tailed tests of gender differences in crying behavior for that attachment style; * $p < .05$, ** $p < .01$; *** $p < .001$.

1.35, large], positive [d s from .63 to .81, moderate to large), crying intensity while listening to music (d s from .21 to .32, small to moderate), whereas the last crying episode (in general [d s from .54 to .67, moderate to large] and last crying episode while listening to music [d s from .18 to .43, small to moderate]) was more recent for women than for men. Effects of crying duration while listening to music were very small (d s from .01 to .19); the women's crying was significantly longer only for the secure ($d = .14$) and dismissive attachment styles ($d = .19$).

Although the number of negative emotions experienced during the time participants last cried in response to music did not differ significantly according to gender, men of all attachment styles reported more positive emotions than women of all attachment styles (d s from .29 to .33, small to moderate).

Associations among attachment style, crying, and emotions. The results of the two-way ANOVAs on the crying variables were unequivocal and showed corresponding patterns concerning the relationship with attachment style. First, the relationship between attachment style and crying behavior was similar for men and women, that is, all gender \times attachment style interactions failed to reach statistical significance at $p < .05$. Secondly, the effect of attachment style was significant for all crying variables at $p < .001$. Thirdly, effect sizes of attachment style were typically small, with partial eta squared values ranging from .007 (for crying duration while listening to music) to .034 (for negative crying proneness). And, finally, the Games and Howell post hoc test unequivocally showed that crying behavior of individuals with a dismissive attachment style was different from that of the other groups. The dismissive attachment style group reported fewer episodes of crying, less tendency to cry over the past 4 weeks and less proneness to cry in general as well as shorter and less intense crying while listening to music.

Differences in crying behavior for the other three attachment style groups were observed for only three variables. Negative crying proneness was less for the secure group than for the fearful ($p = .010$) and preoccupied ($p = .002$) groups, whereas the score for positive crying proneness was higher for the secure group than for the preoccupied ($p = .039$) and fearful ($p = .001$) groups. Finally, individuals with a preoccupied attachment style reported crying more intensely while listening to music than did individuals with a secure attachment style ($p = .001$).

The results of the two-way ANOVA on the number of negative emotions experienced while crying in response to music showed no significant interaction effect of gender and attachment style ($p = .91$), more negative emotions were recorded for women than for men ($p = .03$; partial eta squared = .001, small effect), and there was a small effect of attachment style ($p < .001$, partial eta squared = .015). More precisely, as shown by the results of the Games and Howell post hoc tests, the preoccupied and fearful groups reported more negative

emotions when crying during the time they last listened to music than both the secure and the dismissive attachment style groups. The two-way ANOVA on the number of positive emotions revealed that men reported experiencing more positive emotions than women did ($p < .001$, partial eta squared = .016, small effect), but there was neither an attachment style ($p = .84$) nor an interaction ($p = .90$) effect.

Discussion

The main aim in this study was to gain greater insight into the relationships between attachment style and several aspects of crying. Our hypotheses were partially confirmed. As anticipated, individuals with a dismissive attachment style reported less crying than the other attachment groups, both in general and while listening to music. However, against our expectations, in general, the preoccupied group was not much different from the secure group. The preoccupied group scored higher than the securely attached group only on negative crying proneness and on intensity of crying when listening to music.

A possible explanation for this unexpected finding that, in general, the preoccupied group did not report more crying is that these individuals may be inclined to underreport their emotions – in this case their crying tendency and duration – because of social desirability. Individuals strongly influenced by social desirability may be expected to cry less but also may be more reluctant to report their crying episodes. In particular, socially sensitive people may experience embarrassment and distress when shedding tears (Nelson, 2005). It is possible that individuals with a preoccupied attachment style use other, more socially accepted attachment behaviors (e.g., facial expressions that show vulnerability, asking for help) rather than actual crying in order to keep the attachment figure nearby and thus satisfy a need for closeness.

Both the preoccupied and fearful attachment style groups reported experiencing more negative emotions during the crying episode while listening to music. In addition, as expected, both these groups reported a greater negative crying proneness than the secure and dismissive groups. These findings confirm the high levels of attachment anxiety of individuals with preoccupied and fearful types of attachment (Mikulincer & Shaver, 2007). Anxiously attached individuals are guided in their behavior particularly by the unfulfilled desire for attachment figures to pay what they consider to be adequate attention to them and provide reliable protection (Mikulincer & Shaver, 2003). They tend to overemphasize their vulnerability because this may elicit other people's attention and care (Cassidy & Berlin, 1994). By accompanying hyperactivating negative emotions with crying and by intensifying crying when confronted with negative events, their attachment goals – protection and nurturing from the attachment figure – are more likely to be met.

Because the groups also differed in terms of the number of negative emotions experienced, we wondered if the observed differences in crying intensity and duration were mediated by those negative emotions. This proved not to be the case. All differences between attachment styles remained significant after controlling for these emotions.

All effect sizes of attachment style were consistently small. However, this is not surprising given that an individual's crying behavior is influenced by many other factors, including genetics, age, social learning, experience with traumatic situations, and current physical and mental condition. This implies that the influence of any factor, including attachment, can be expected to be, at best, very modest.

A limitation of this study relates to the methods applied. We relied on retrospective self-reports. More precisely, each participant was asked to recall the song that made him or her cry most recently and to report the emotions experienced during this crying episode. There are at least two disadvantages of this design. First, the validity of part of the responses might be questionable since the last crying episode while listening to music could have been a long time ago for many – and in particular male – respondents. Secondly, the songs that made the participants cry differed across participants, which might have confounded the results.

In Study 2 we addressed the weaknesses of Study 1. Our second study was designed to replicate and extend our findings in Study 1. Confounding that resulted from retrospective self-reports and differential stimuli was prevented by exposing all participants to the same songs and asking them to report their tendency to cry after each song.

Study 2

Study 2 consisted of two parts. In Part 1, we examined the tendency to cry when listening to songs that reportedly elicit sadness, nostalgia, poignancy, and happiness. The selection of these emotions was based on the fact that (a) these were frequently mentioned in response to music in Study 1, and (b) they cover both negative and positive emotions.

We also evaluated the association between attachment style and crying frequency, and that between attachment style and crying inhibition. *Inhibition of crying* was conceptualized as *the absence of crying in circumstances where it is normal and accepted to shed tears*. We conducted this evaluation in order to explore whether individuals with a dismissive attachment style exert more control over their tears than do individuals with other attachment styles.

In Part 2 we assessed the participants' tendency to cry when listening to three emotional songs in which the theme of the lyrics was attachment related. These

songs were selected by the researchers on the basis of (a) the high frequency of being mentioned in Study 1, and (b) the ratings of the lyrics by independent raters on eight specific attachment themes. The selected songs had, respectively, the highest ratings on the attachment themes separation/loss, reunion/proximity, and arguing. We expected that the themes of the songs would more easily activate the attachment system and attachment-related feelings than would songs without an attachment-related theme (cf. Spangler & Zimmerman, 1999).

As in Study 1, we hypothesized that the dismissive attachment style group would cry less often in general and would be less likely to cry when listening to music than the preoccupied attachment style group, and that the scores of the secure attachment style group would fall between these two groups. In addition, we expected that the dismissive style group would report more crying inhibition than would the other attachment style groups.

Method

Participants. As in Study 1, visitors to the website of the Dutch National Radio 2 in December 2007 were invited to participate in a study on music and emotions. The participants were 1,297 men and 1,150 women. The average age of men and women in the sample was 35.7 ($SD = 13.8$) and 37.4 years ($SD = 13.9$), respectively. The sample contained relatively more highly educated individuals than the general Dutch population (37.3% versus 30%).

Measures. For the measurement of crying frequency and attachment style, the same measures were used as in Study 1. For the assessment of crying inhibition, a specifically designed 6-item measure ($\alpha = .77$), with a 5-point response format (ranging from 1 = *does not apply to me* to 5 = *totally applies to me*) was applied. It contained the following items "I am able to control my tears", "I would like to cry more often, but I am not able to", "Almost anything causes me to cry", "Even in highly emotional situations I am not able to cry", "I wish I did not cry so easily", "It seems as if I am not able to produce emotional tears anymore".

Participants rated their crying tendency in response to each of the four self-reported songs in Part 1 and the three songs in Part 2 (rated on a 4-point scale, ranging from 0 = *not at all* to 3 = *very much*).

Procedure. In Part 1 participants provided demographic data (gender, age, ethnicity, and education), and answered questions on attachment, crying frequency, crying inhibition, and crying tendency while listening to music. Participants were asked to report songs that induced strong feelings of nostalgia, sadness, happiness, and poignancy, respectively, and to rate their crying tendency for each of the reported songs.

After completing Part 1, participants were invited to take part in Part 2, where they were exposed to three songs relating to separation and loss, reunion and proximity, and arguing, respectively, while the lyrics were presented on the

screen. Two songs were in Dutch, one song was in English. The song “Geen kind meer” [No longer a child] by Karin Bloemen deals with separation and loss, the song “Avond” [Evening] by Boudewijn de Groot is about reunion and proximity, and the song “Hurt” by Christina Aguilera focuses on disagreement and arguing. After listening to each song, participants rated their crying tendency. Completion of both parts took approximately 40 minutes.

Data analysis. The data analysis of Study 2 followed the same logic and structure as that in Study 1.

Results

Gender, attachment style, and crying. The distribution of attachment styles for the total sample was 43.1% secure, 20.6% fearful, 12.1% preoccupied, and 24.3% dismissive. As in Study 1, the distributions of men and women differed, ($\chi^2_{(3)} = 147.7, p < .001$, Cramer’s $V = .20$). The percentages for men (women) were 39.5 (47.8) for secure, 16.4 (26.0) for fearful, 13.5 (10.1) for preoccupied, and 30.6 (16.1) for dismissive.

The means of all crying variables for all attachment style and gender combinations are shown in Table 2. Each total column contains the results of one-tailed tests of the effect of gender on the crying variables for each of the four attachment styles. For each attachment style, women scored higher than men on crying frequency, and reported a significantly stronger tendency to cry when listening to the self-reported sad, nostalgic, and poignant songs. Men scored higher than women on crying inhibition (Cohen’s d s ranging from .80 to .93). Effect sizes were moderate for crying frequency (d s between .41 and .61) and for the sad (.43 to .70) and poignant (.41 to .60) songs and small for the nostalgic (.23 to .29) song. Women also scored higher than men on crying tendency while listening to the three songs in Part 2. The effect of gender was moderate for the separation/loss song (.53 to .61), but small for the argument (.19 to .41) and proximity/reunion (0 to .24) songs.

Associations between attachment style and crying behavior. The results of the two-way ANOVAs on crying behavior were unequivocal and similar for the self-reported songs in Part 1 and the songs selected by the researchers in Part 2. The exception was for the happy song, for which no effect was observed, but all other analyses led to the same conclusions concerning the effect of attachment style and its effect size. First, none of the gender \times attachment style interactions were significant at $p < .05$, indicating that the effect of attachment style on crying behavior was the same for both genders. Second, the effect of attachment style was significant for all crying variables. Except for the p values for the separation/loss ($p = .012$) and arguing ($p = .002$) songs, all were .001 or lower. Third, effect sizes of attachment style were small, with partial eta squared values ranging from .010 to .023. Finally, the Games and Howell post hoc test unequivocally

Table 2. Means of Crying Behavior According to Attachment Style and Gender in Study 2

	Secure			Fearful			Preoccupied			Dismissive		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Inhibited crying	22.61 (3.93) n = 230	18.96 (3.94) n = 292	20.56*** (4.34)	23.47 (4.22) n = 88	20.09 (4.19) n = 152	21.33*** (4.51)	22.61 (3.85) n = 90	18.69 (4.39) n = 58	21.07*** (4.59)	23.76 (4.04) n = 156	20.63 (3.82) n = 87	22.64*** (4.17)
Crying frequency	1.71 (4.31) n = 230	3.64 (4.67) n = 292	2.79*** (4.61)	2.06 (5.37) n = 88	4.18 (5.06) n = 152	3.40** (5.26)	2.93 (5.81) n = 90	5.38 (5.15) n = 58	3.89** (5.67)	.90 (3.13) n = 156	3.11 (4.46) n = 87	1.70*** (3.80)
Crying tendency												
- Sadness	2.20 (.96) n = 357	2.72 (.96) n = 405	2.48*** (1.00)	2.06 (.92) n = 134	2.73 (.97) n = 214	2.47*** (1.00)	2.36 (1.05) n = 129	2.79 (.97) n = 86	2.53** (1.04)	1.93 (.97) n = 249	2.44 (1.11) n = 122	2.10*** (1.05)
- Nostalgia	1.53 (.81) n = 529	1.78 (.91) n = 556	1.66*** (.87)	1.50 (.77) n = 208	1.75 (.91) n = 302	1.65*** (.87)	1.75 (.98) n = 181	1.97 (1.03) n = 118	1.84* (1.01)	1.45 (.75) n = 379	1.64 (.87) n = 174	1.51** (.79)
- Poignancy	2.10 (.92) n = 428	2.49 (.99) n = 483	2.30*** (.98)	1.93 (.87) n = 160	2.52 (1.04) n = 257	2.29*** (1.02)	2.19 (1.01) n = 155	2.69 (.98) n = 108	2.40*** (1.03)	1.90 (.93) n = 297	2.30 (1.02) n = 147	2.03*** (.98)
- Happiness	1.10 (.37) n = 330	1.09 (.31) n = 378	1.10 (.34)	1.11 (.41) n = 122	1.11 (.46) n = 202	1.11 (.44)	1.16 (.50) n = 122	1.11 (.42) n = 79	1.14 (.47)	1.05 (.28) n = 232	1.11 (.39) n = 114	1.07* (.33)
- Separation/loss	1.57 (.87) n = 195	2.18 (1.07) n = 256	1.92*** (1.03)	1.63 (.81) n = 72	2.16 (1.10) n = 121	1.96*** (1.03)	1.55 (.87) n = 73	2.26 (1.15) n = 53	1.85*** (1.05)	1.39 (.66) n = 126	1.84 (1.04) n = 64	1.54*** (.83)
- Proximity/reunion	1.42 (.72) n = 192	1.54 (.81) n = 259	1.49* (.77)	1.41 (.60) n = 70	1.52 (.76) n = 124	1.48 (.71)	1.48 (.75) n = 73	1.68 (.92) n = 56	1.57 (.83)	1.30 (.56) n = 131	1.23 (.55) n = 66	1.27 (.56)

Table 2 continued

	Secure			Fearful			Preoccupied			Dismissive		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
-Argument	1.24 (.58)	1.54 (.86)	1.41*** (.76)	1.45 (.78)	1.60 (.88)	1.55 (.85)	1.54 (.86)	1.79 (1.07)	1.64 (.96)	1.25 (.56)	1.53 (.88)	1.34** (.73)
	<i>n</i> = 207	<i>n</i> = 263		<i>n</i> = 74	<i>n</i> = 129		<i>n</i> = 78	<i>n</i> = 56		<i>n</i> = 137	<i>n</i> = 70	

Notes: Standard deviations in parentheses. Asterisks in the total columns correspond to one-tailed tests of gender differences in crying behavior for that attachment style; * $p < .05$, ** $p < .01$, *** $p < .001$.

Not all participants who completed part 1 also completed part 2, so *n* differs across the dependent variables. The participants who completed part 2 were the same as those who only completed part 1 in relation to age and education. Relatively more women completed part 2 (50.8%) than part 1 (46.8%).

revealed that crying behavior of the dismissive attachment style group was different from the other groups. More specifically, the dismissive attachment style group reported crying significantly less and inhibiting crying more than either the fearful or the preoccupied attachment style groups, and reported less tendency to cry than the latter two groups while listening to music on both the self-reported songs and songs selected by the researchers. For the self-reported songs that evoked feelings of sadness, poignancy, nostalgia, or happiness, the dismissive attachment style group scored significantly lower on crying tendency than the secure group. The dismissive group also reported crying less than did the secure group while listening to the separation/loss and proximity/reunion songs but this difference was not reported for the arguing song. Moreover, the dismissive group reported inhibiting crying more than the secure group. For 8 of the 9 crying variables presented in Table 2 no difference was found between the other three attachment styles. The exception was that the preoccupied attachment style group reported a significantly higher crying tendency than both the secure and fearful groups while listening to the nostalgic song.

Discussion

This second study was designed to replicate and extend the findings obtained in Study 1. The results did, indeed, show a great correspondence. The findings again demonstrated that individuals with a dismissive attachment style reported less crying in general than the other attachment style groups and less tendency to cry while listening to either self-reported or researcher-selected songs. In addition, it was found that individuals with a dismissive style of attachment were more inhibited in their crying than individuals in all the other groups. Also in line with the findings in Study 1, in general, comparable results were obtained for the preoccupied and secure groups, the preoccupied group scored higher only on crying tendency for a nostalgic song. Possible explanations for this finding, such as social learning and underreporting one's crying behavior, are already addressed in the discussion of Study 1.

To conclude, although we used a different operationalization of crying, our findings were similar to those in Study 1. Hence, our findings in Study 2 provide us with more robust evidence for the association between attachment styles and crying in general and while listening to music.

In addition, in Study 2 we found that individuals who have a dismissive style of attachment tend to try harder to inhibit their crying than do the other groups. This finding supports the notion that individuals with a dismissive attachment style tend to apply deactivating strategies, which may help them to avoid taking notice of their own emotional reactions (Shaver & Mikulincer, 2007).

General Discussion

In our two studies we addressed the relationship between attachment and crying in adults specifically and systematically. Crying was operationalized in different ways (in general and in response to music) and different aspects of crying were measured (frequency, duration, intensity, tendency, proneness, inhibition). We expected that an adult's crying behavior would be, in part, determined by his or her attachment style.

Strong support was found for our hypothesis that individuals with a dismissive attachment style were likely to cry less than individuals with other attachment styles. In addition, the group with a dismissive attachment style reported more crying inhibition. These findings fit the notion that this group is characterized in particular by inhibition and masking of verbal and nonverbal emotional expressivity (Mikulincer & Shaver, 2007).

The findings for the preoccupied attachment style group were also consistent across the two studies, but confirmed our expectations only in part. In particular, the preoccupied group did not cry more frequently than individuals with a secure or fearful attachment style, but the accompanying emotions and intensity of the crying did differ. Individuals in the preoccupied attachment style group reported crying with a greater intensity and also experiencing more negative affect than did the other groups. In addition, both the fearful and the preoccupied attachment style groups reported a stronger negative crying proneness than both the secure and the dismissive attachment style groups. This is consistent with the notion that these individuals are inclined to apply a so-called hyperactivating strategy. This result is also in line with Nelson's (2000, 2005) descriptions of the crying characteristics of preoccupied and fearfully attached individuals and the emotions that prevail during their crying. In addition, previous researchers have found that individuals who have an anxious attachment style have self-defeating appraisal processes that cause them to tend to exaggerate negative events and emotions (Collins & Read, 1994; Shaver & Clark, 1994). These aspects of their crying behavior could well be considered an indication of exaggeration of these negative emotions.

Major strengths in our studies were the large number of participants and the use of different operationalizations of crying. Because of the web-based design of this study we had to use a (preferably brief) self-report measure for assessing attachment. Following Sibley et al. (2005) we considered the RQ the best choice. Although there has been some discussion about the validity of the RQ, it is widely used (e.g., Cooley, Van Buren, & Cole, 2010; Li, Li, & Dai, 2008; Rusby & Tasker, 2008) and a recent review has shown that it has adequate psychometric qualities (Ravitz et al., 2010).

For future studies, we recommend the use of other, or additional, measures to assess attachment style and crying. For example, in a laboratory study observational and physiological data can be collected when exposing study participants with different attachment styles to emotional stimulation.

In our studies we once more added to substantial existing evidence that women cry more often and more intensely than men and also tend to report more negative emotions (Vingerhoets & Scheirs, 2000). The fact that considerably more men than women can be characterized as having a dismissive style of attachment, whereas more women than men have a secure attachment style, adds to the current explanations of gender differences in crying, which currently emphasize the role of sex hormones, exposure to emotional stimuli, and the effects of social learning.

In conclusion, the results in this study on the relationship between attachment and crying – an important attachment behavior maintained over the lifespan – are a valuable addition to the current knowledge on attachment and emotion regulation in general and attachment and emotional crying in particular. There is already substantial evidence on the relationship between attachment and emotion regulation (see Mikulincer & Shaver, 2007, for a review), and the findings presented here partly confirm these conclusions and also add some fine distinctions to knowledge about this relationship. Our findings were consistent, but, generally, effect sizes were quite small. In future research, the focus could be on more controlled studies, exposing individuals with different attachment styles to emotional stimuli in a more rigid experimental setting, which would allow for better control of potential confounders, such as reaction to the social environment and frequency and intensity of the emotional situations. In addition, such research could be focused on possible underlying psychological and physiological mechanisms.

Attachment insecurity is known to increase the risks of developing mental and behavioral disorders like depression and personality disorders (Mikulincer & Shaver, 2007) with the characteristic problems related to emotion regulation in general (Mikulincer & Shaver, 2007) and crying in particular (Nelson, 2008). Psychotherapeutic interventions can be designed around individuals' experiences of crying and noncrying in the context of the psychotherapeutic treatment relationship, thus providing valuable information about the quality of an individual's past and present attachments (Nelson, 2000). When crying or noncrying is an indication of insecure attachment, a security-providing therapist upon whom the client can rely for safety and support, can guide the client to become more capable of dealing with distress autonomously and of regulating emotions and crying appropriately. In other words, evaluating and understanding crying in the light of attachment theory can possibly assist both client and therapist

in dealing more adequately with emotions in psychotherapy by providing a more effective means of developing clients' coping skills and resilience.

References

- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226-244. <http://doi.org/gjm>
- Baumgartner, H. (1992). Remembrance of things past: Music, autobiographical memory, and emotion. *Advances in Consumer Research, 19*, 613-620.
- Bowlby, J. (1969/1982). *Attachment and loss* (Vol. 1, 2nd ed.). New York: Basic Books.
- Cassidy, J., & Berlin, L. J. (1994). The insecure/ambivalent pattern of attachment: Theory and research. *Child Development, 65*, 971-991. <http://doi.org/g63>
- Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships: Attachment processes in adulthood* (Vol. 5, pp. 53-90). London, UK: Kingsley.
- Cooley, E. L., Van Buren, A., & Cole, S. P. (2010). Attachment styles, social skills, and depression in college women. *Journal of College Counseling, 13*, 50-62.
- Fosha, D. (2010). Healing attachment trauma with attachment. In M. Kerman (Ed.), *Clinical pearls of wisdom: 21 leading therapists offer their key insights* (pp. 43-56). New York: Norton.
- Frey, W. H., Hoffman-Ahern, C., Johnson, R. A., Lykken, D. T., & Tuason, V. B. (1983). Crying behavior in the human adult. *Integrative Psychiatry, 1*, 94-98.
- Hendriks, M. C. P., Nelson, J. K., Cornelius, R. R., & Vingerhoets, A. J. J. M. (2008). Why crying improves our well-being: An attachment-theory perspective on the functions of adult crying. In A. J. J. M. Vingerhoets, I. Nyklíček, & J. Denollet (Eds.), *Emotion regulation: Conceptual and clinical issues* (pp. 87-96). New York: Springer. <http://doi.org/g64>
- Juslin, P. N., & Laukka, P. (2004). Expression, perception and induction of musical emotions: A review and a questionnaire study of everyday listening. *Journal of New Music Research, 33*, 217-238. <http://doi.org/g65>
- Li, T., Li, J., & Dai, Q. (2008). Adult attachment, social support, and depression level of poststroke patients. *Social Behavior and Personality: An international journal, 36*, 1341-1352. <http://doi.org/g66>
- Maxwell, S. E., & Delaney, H. D. (2004). *Designing experiments and analyzing data: A model comparison perspective* (2nd ed.). Mahwah, NJ: Erlbaum.
- Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. *Advances in Experimental Social Psychology, 35*, 53-152. <http://doi.org/g68>
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford.
- Nelson, J. K. (2000). Clinical assessment of crying and crying inhibition based on attachment theory. *Bulletin of the Menninger Clinic, 64*, 509-529.
- Nelson, J. K. (2005). *Seeing through tears: Crying and attachment*. New York: Taylor & Francis.
- Nelson, J. K. (2008). Crying in psychotherapy: Its meaning, assessment, and management based on attachment theory. In A. J. J. M. Vingerhoets, I. Nyklíček, & J. Denollet (Eds.), *Emotion regulation. Conceptual and clinical issues* (pp. 202-215). New York: Springer. <http://doi.org/g69>
- Newman, J. D. (2007). Neural circuits underlying crying and cry responding in mammals. *Behavioural Brain Research, 182*, 155-165. <http://doi.org/g7b>

- Ravitz, P., Maunder, R., Hunter, J., Sthankiya, B., & Lancee, W. (2010). Adult attachment measures: A 25-year review. *Journal of Psychosomatic Research*, *69*, 419-432. <http://doi.org/g7d>
- Rusby, J. S. M., & Tasker, F. (2008). Childhood temporary separation: Long-term effects of the British evaluation of children during World War 2 on older adults' attachment styles. *Attachment & Human Development*, *10*, 207-221. <http://doi.org/g7f>
- Shaver, P. R., & Clark, C. L. (1994). The psychodynamics of adult romantic attachment. In J. M. Masling & R. F. Bornstein (Eds.), *Empirical perspectives on object relations theory* (Vol. 5, pp. 105-156). Washington, DC: American Psychological Association.
- Shaver, P. R., & Mikulincer, M. (2007). Adult attachment strategies and the regulation of emotion. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 446-465). New York: Guilford.
- Sibley, C. G., Fischer, R., & Liu, J. H. (2005). Reliability and validity of the Revised Experiences in Close Relationships (ECR-R) self-report measure of adult romantic attachment. *Personality and Social Psychology Bulletin*, *31*, 1524-1536. <http://doi.org/g7g>
- Spangler, G., & Zimmerman, P. (1999). Attachment representation and emotion regulation in adolescents: A psychobiological perspective on internal working models. *Attachment & Human Development*, *1*, 270-290. <http://doi.org/g7h>
- Verschueren, K., & Marcoen, A. (1993). Gehechtheidstijl, intimiteit en vertrouwen in de jongvolwassenheid: Een reflectie van de ervaren ouderlijke sensitiviteit? [Attachment style, intimacy, and trust in young adulthood: A reflection of perceived parental sensitivity?] *Psychologica Belgica*, *33*, 49-76.
- Vingerhoets, A. J. J. M. (1995). *Questionnaire on adult crying*. Internal publication, Tilburg University, Tilburg, The Netherlands.
- Vingerhoets, A. J. J. M., Boelhouwer, A. J. W., Van Tilburg, M. A. L., & Van Heck, G. L. (2001). The situational and emotional context of adult crying. In A. J. J. M. Vingerhoets & R. R. Cornelius (Eds.), *Adult crying: A biopsychosocial approach* (pp. 71-89). Hove, UK: Brunner-Routledge.
- Vingerhoets, A. J. J. M., Bylsma, L. M., & Rottenberg, J. (2009). Crying: A biopsychosocial phenomenon. In T. Fögen (Ed.), *Tears and crying in Graeco-Roman antiquity* (pp. 439-475). Berlin & New York: de Gruyter.
- Vingerhoets, A. J. J. M., & Cornelius, R. R. (Eds.) (2001). *Adult crying: A biopsychosocial approach*. Hove, UK: Brunner Routledge.
- Vingerhoets, A. J. J. M., & Scheirs, J. G. M. (2000). Sex differences in crying: Empirical findings and possible explanations. In: A. H. Fischer (Ed.), *Gender and emotion: Social psychological perspectives* (pp. 143-165). Cambridge, MA: Cambridge University Press.

