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*Cross-Cultural Research* 2011 45: 399 originally published online 28 April 2011  
DOI: 10.1177/1069397111404519

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# Culture and Crying: Prevalences and Gender Differences

Cross-Cultural Research  
45(4) 399–431  
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DOI: 10.1177/1069397111404519  
<http://ccr.sagepub.com>



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## Abstract

Results of a cross-cultural study of adult crying across 37 countries are presented. Analyses focused on country differences in recency of last crying episode and crying proneness and relationships with country characteristics. Three hypotheses on the nature of country differences in crying were evaluated: (a) distress due to exposure to taxing conditions, (b) norms regarding emotional expressiveness, and (c) personality (at country level). Individuals living in more affluent, democratic, extraverted, and individualistic countries tend to report to cry more often. These indicators relate to freedom of expression rather than to suffering; therefore, our data provide support for a model that views country differences in crying as being connected with country differences in expressiveness and personality rather than in distress. Gender differences in crying proneness were larger in wealthier, more democratic, and feminine countries. Differences in the meaning of crying at individual level (usually viewed as a sign of distress) and country level (as a sign of expressiveness and personality) are discussed.

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**Keywords**

crying, emotional expression, distress, gender, cross-national differences

**Culture and Crying: Prevalences and Gender Differences**

Crying is a typically human form of emotional expression, which has not received much attention of behavioral scientists (Bylsma, Vingerhoets, & Rottenberg, 2008; Vingerhoets, Bylsma, & Rottenberg, 2009; Vingerhoets, Cornelius, Van Heck, & Becht, 2000). Nevertheless, in the popular media, strong claims have been made about the functions of crying. Best known is the claim that crying is beneficial for one's well-being and even for one's health (see Cornelius, 1986, 2001). More recently, it has been speculated that the importance of crying should be sought rather in its social and relational effects, as crying reduces aggression and stimulates social bonding (Walter, 2006).

There is also little knowledge concerning cross-cultural differences in crying, although this issue already aroused the interest of pioneers like Darwin (1872/1965) and the American psychologist Borgquist (1906). The present study is the first to examine more systematically the relation with cultures at country level by using data from 37 countries. To arrive at a cross-cultural model of crying, we evaluated three hypotheses on crying tendency and recency of last crying episode (as an index of crying frequency) across cultures by exploring the relationships between country-level crying data and various country characteristics. In addition, we focused on the association between gender differences in crying and country features.

***Individual-Level Models of Crying***

There is general agreement that crying can best be conceptualized as an attachment behavior, serving to signal distress and to elicit caregiving and emotional support (Hendriks, Nelson, Cornelius, & Vingerhoets, 2008). This most important function is likely maintained during the life time. Tears are shed for a wide variety of reasons, but mainly in situations characterized by loss, conflicts, and perceived inadequacy (Vingerhoets, Boelhouwer, Van Tilburg, & Van Heck, 2001). In addition, there is a seeming association with the experience of happy situations (e.g., winning a gold medal at the Olympic Games, reunions, and weddings), sentimental reactions (Tan & Frijda, 1996), and tender feelings (Darwin, 1872/1965). Tears are also observed in many

cultures in specific rites of passage such as initiations, weddings or reunions, and situations like greeting rituals and peacemaking (Ebersole, 2000).

Rather than focusing on specific emotion terms, probably the best and most parsimonious way to characterize the antecedents of crying is by referring to the experienced powerlessness and the perceived lack of adequate coping responses (Vingerhoets et al., 2001). People cry in particular when they are not able to display effective behavior to solve the problem they are confronted with (maybe even the expression of their happiness). It has been suggested that tears represent the energy that cannot be worked out in actual behavior. Crying is also an important signal meant to trigger assistance and closeness with others. However, it can also be regarded an important symptom of disease or a sign of distress (Barr, Hopkins, & Green, 2000). Finally, the possible social-relational effects should not be overlooked, in particular reduction of aggression and the stimulation of social bonding (Hasson, 2009; Walter, 2006). These multiple functions make crying an intriguing, not yet understood phenomenon that deserves further examination.

### *Cross-Cultural Research on Crying*

Darwin (1872/1965) studied both psychological (e.g., antecedents) and physiological aspects (e.g., which facial muscles are involved) of crying. He was aware of the attention-evoking function of crying and additionally claimed that it might bring relief to the crier. Darwin was also the first who explicitly indicated the connection of crying with both positive and negative emotional states, such as reading a moving story, bodily pain, and distress. Remarkably, he considered tears as an exception to the rule that all behavior should serve a survival function. On the contrary, he considered tears as meaningless “byproducts” of muscular contractions serving to protect the eye.

Darwin (1872/1965) was also the first to speculate about cross-cultural differences in prevalence of crying. He argued that in Western cultures, notably England, crying was far less common than in non-Western cultures. Borgquist (1906) collected descriptions of crying episodes from missionaries and ethnologists in various regions of the world. He found few differences with reports obtained from 200 American colleagues. However, he did note some differences in the frequency of crying among cultures: “Tears are more frequently shed among the lower races of mankind than among civilized people” (p. 180). Borgquist based his claim on the many references to crying in writings about Latin races, Blacks, Indians, Japanese, Samoans, Sandwich Islanders, and Maoris. It is noteworthy that Darwin and Borgquist agreed that crying was less prevalent in Western countries than in non-Western cultures.

After these pioneering activities, it took more than 70 years before new cross-cultural studies of crying were conducted. Szabo and Frey (1981) asked American and Hungarian students to keep crying diaries. Americans reported more frequent crying episodes than did Hungarians. The figures were 1.5 versus 0.7 times per month for American and Hungarian men, respectively. American women reported an average of 5.3 crying episodes per month, whereas Hungarian women reported 3.1 episodes. In a comparison between British and Israeli students and faculty staff, Williams and Morris (1996) found substantial cultural and gender differences, although the latter were larger. Female British respondents estimated their annual crying frequency to be 31.7 and for the male participants this number was 8.4, whereas Israeli women and men reported frequencies of 17.4 and 4.8, respectively. In the Kraemer and Hastrup (1986) study, female American students estimated their annual crying frequency at 47.8 times, whereas males reported 6.5 episodes. These findings suggest that Israelis, when compared to British and the Americans studied by Kraemer and Hastrup, cry relatively infrequently. More recently, Becht and colleagues (Becht, Poortinga, & Vingerhoets, 2001; Becht & Vingerhoets, 2002; Vingerhoets & Becht, 1997) examined crying in 37 countries. Large country differences in crying were found (Vingerhoets & Becht, 1997) but in these studies no theoretical explanations were offered for the identified cross-cultural differences.

### *Country-Level Models of Crying*

To the best of our knowledge, there are currently no theories about country differences in crying. As a consequence, there is no framework from which hypotheses about country-level differences can be derived. Therefore, as a working hypothesis, we propose that relations observed at individual level also hold at country level. In the multilevel literature, this assumption, known as isomorphism, is often made (Van de Vijver, Van Hemert, & Poortinga, 2008). The term *isomorphism* refers to the simplest relation (identity) between phenomena at individual and country level, which may explain its popularity. Assuming isomorphism, we can use individual-level models for formulating country-level hypotheses.

Bekker and Vingerhoets (2001) have introduced a model for the systematic investigation of groups and/or interindividual differences in crying frequency. In this model, the following factors are distinguished: (a) a baseline threshold for shedding tears; (b) the amount of exposure to cry-eliciting stimulation; (c) appraisal processes and capacity to regulate emotional impulses; and (d) social factors that may encourage or prevent the shedding of tears.

Within this framework, a first question for cross-cultural research is whether different cultural groups might differ in their baseline threshold for shedding tears. As far as is known, there are no studies demonstrating systematic genetic differences (or similarities) in emotionality in different cultural groups (see Brebner, 2003). Naturalistic studies suggest that the individual's crying threshold can be influenced by physical state (e.g., tiredness, sleeplessness, menstrual cycle, and probably brain serotonin levels), transient psychological states (e.g., low mood), and more stable personality factors (e.g., neuroticism; for example, Vingerhoets et al., 2009). Second, one may wonder whether there are good reasons to expect that in some nations individuals are more likely to be exposed to stressful and emotional conditions, or that there are systematic differences in how ethnic groups appraise emotional situations. Finally, one should consider possible differences in cultural factors regulating the expression of emotions (e.g., display rules). In the current contribution, we use cross-level isomorphism to generalize these individual difference determinants to the country level.

Theories on country differences in crying are drawn here from the following three individual-level conceptions of crying that are not mutually exclusive: (a) distress resulting from a high level of exposure to adverse conditions; (b) expressiveness related to display rules and social norms; and (c) personality. These three determinants (distress, expressiveness, and personality) are studied here at country level and operationalizations of these constructs can be derived from aggregated individual-level scores, such as country averages on personality measures. Both direct and indirect measures of personality at country level have been proposed in the literature. Some studies have reported country-level data obtained with personality questionnaires (e.g., McCrae, 2002; Van Hemert, Van de Vijver, Poortinga, & Georgas, 2002). In addition, proxies (indirect measures) for psychological variables have been proposed (e.g., political freedom as a measure of freedom of expression and hence, expressiveness of a country). Below, we briefly outline our specific hypotheses regarding the three models of country differences in crying.

*Distress model.* In an analysis of cross-national depression scores, Van Hemert, Van de Vijver, and Poortinga (2002) found that less affluent countries tend to report higher scores on depression. This observation is in line with livability theory (Veenhoven, 1995), which states that subjective well-being is higher (and depression is lower) in countries with better objective living conditions in terms of education, income, equality, and so on. This relationship is expected to be particularly salient in the lower half of the affluence distribution. The same line of reasoning would predict that individuals living in less affluent countries are more depressed and thus cry more often.

Similarly, a more demanding climate might cause more distress and hence, more crying. Van de Vliert (2007) demonstrated that in more demanding climates (either extremely cold or extremely hot), survival becomes more important; yet, happiness levels are lower if these countries are economically deprived; no such relationship is found in more affluent countries. Climate only matters in less wealthy countries. This crying-as-distress perspective leads to the Distress Hypothesis:

*Hypothesis 1:* Individuals living in countries with a more demanding economy and climate cry more often than individuals in less demanding countries.

This perspective can also be applied to gender differences in crying. Large differences between men and women have been reported in previous crying research (Becht et al., 2001; Kraemer & Hastrup, 1986; Szabo & Frey, 1981; Williams & Morris, 1996; see Bekker & Vingerhoets, 2001, and Vingerhoets & Scheirs, 2000, for reviews). With a remarkable consistency across countries, time, and studies, women have been reported to cry more frequently and more intensely than men. However, these gender differences in crying are not necessarily similar across countries (Fischer, Rodriguez Mosquera, Van Vianen, & Manstead, 2004). Several cross-cultural studies have reported distinct gender disparities in personality traits (Costa, Terracciano, & McCrae, 2001), depression (Nolen-Hoeksema, 1987), gender stereotypes (Williams & Best, 1990), and romantic attachment (Schmitt et al., 2003). In line with the distress perspective, it is anticipated that gender differences in crying are concomitant to gender differences in objective living conditions; more precisely, we expect larger gender differences in crying in countries with more differential access to resources for men and women. This reasoning leads to the Gender Differences in Distress Hypothesis:

*Hypothesis 2:* Cross-national gender differences in crying are positively related to gender differences in access to resources.

*Emotional expressiveness model.* In this second model, crying is regarded as emotional expressiveness that, like other forms of expressiveness, is influenced by cultural norms prescribing how, when, and where it is appropriate to express emotions. Expressed emotions are not mere reflections of the mood of the person displaying the emotion (as implied in the Distress Hypothesis), but the expression is hypothesized to be moderated by culturally determined display rules (Ekman, 1973; Matsumoto, 1989). One example is the Japanese

norm on the expression of grief. Widows reportedly smiled when hearing that their husband had died in combat during World War II, because this is considered an honorable death (mentioned in Berry, Poortinga, Segall, & Dasen, 2002). Also, Tseng (2001) states that in many non-Western cultures individuals who indicate to be “depressed” (as evidenced, among others, by frequent crying) are viewed as weak and may consequently be ignored or even socially rejected.

Two characteristics have been associated in the literature with country differences in emotional expressiveness: temperature and tolerance of individual freedom. Pennebaker, Rimé, and Blankenship (1996) addressed the relation between a country’s temperature and expressiveness. They found a weak, but significant positive association between temperature (latitude) and self-reported emotional expressiveness across 26 countries. The difference with the work by Van de Vliert (2007) is subtle, though important in the current context. Whereas Pennebaker et al. would predict increased crying with higher average temperatures, Van de Vliert’s model leads to the expectation of an increase from cold to moderate and warm zones, but a decrease from warm to hot zones. According to Van de Vliert, one additionally would expect the relationship to hold for low-income countries only, whereas Pennebaker et al. do not refer to the moderating influence of economic development.

Tolerance of individual freedom to express can be understood through the distinction between *tight* and *loose* cultures (Pelto, 1968; Triandis, 1990, 1995). Tightness, associated with less freedom of individual expression, is more likely in cultures that are denser, more homogeneous, more isolated, where people have more opportunity of surveillance of the behavior of others, and where there is more interdependence of jobs. More crying can be expected in looser countries that impose fewer restrictions on the individual’s behavior. Likewise, in collectivist countries, emotional expression, including crying, may be less acceptable than in individualist countries, at least when directed toward outgroups such as researchers (Triandis, 1995). Tolerance of emotional expression may also be related with freedom in a political sense, such as a higher level of observance of civil rights, or tolerance and permissiveness in a more psychological sense. Van Hemert, Poortinga, and Van de Vijver (2007) found some evidence for a positive association between tolerance of freedom and emotional expression. Emotional expression may also be related to religiosity. More religious countries might allow less freedom of expression of emotions than less religious countries. The negative relation between religiosity and crying could also be based on another reasoning. Religiosity can be an important coping mechanism used to resolve personal problems and to deal with emotional events (e.g., Connor-Smith & Flachsbart, 2007);



therefore, religiosity can be used to alleviate distress and to channel emotions, which would lead to less crying. To summarize, the various mechanisms described here lead to the Expressiveness Hypothesis:

*Hypothesis 3:* Individuals in countries that are looser, less religious, and allow more freedom of expression of individual feelings cry more often than individuals in more restricted countries.

This reasoning clearly challenges the ideas of Darwin (1872/1965), Borgquist (1906), and also Freud who all agreed that culture and civilization have an inhibitory effect on emotional crying.

Gender differences in crying can also be understood as the reflection of differences in values concerning appropriate female and male behavior. Country characteristics that are more conducive to the expression of feelings by both genders are expected to be associated with larger gender differences in crying. For example, countries that are masculine (such as South American countries; Hofstede, 2001) show less gender egalitarianism, which would lead to larger gender differences in crying. The underlying assumption is that women report more crying than men within and across countries (see Gender Hypothesis) but culture restricts or enhances expressiveness. Thus, the Gender Differences in Expressiveness Hypothesis can be formulated as follows:

*Hypothesis 4:* Cross-national gender differences in crying are positively related to gender differentiation in values, stereotypes, and women's power.

*Personality model.* Again, our hypotheses are based on relationships demonstrated at the individual level. The limited literature on the relationship between crying and personality reveals a moderate, positive association between neuroticism and crying (for a review see Vingerhoets, Van Tilburg, Boelhouwer, & Van Heck, 2001), possibly because neurotic persons experience more worries and distress, which makes it more likely that they cry; this relation would be in line with the distress hypothesis mentioned before. In addition, there is some evidence suggesting a positive relation between extraversion and crying, although this relation may be limited to those conditions in which the aim of crying is to elicit positive emotional support; moreover, the relation may be a consequence of the larger expressiveness of extraverted individuals. The connection between depression and crying is also not very clear. Vingerhoets, Rottenberg, Cevaal, and Nelson (2007) concluded in a

literature review that there are some studies suggesting that crying occurs more often in depressed patients, but there is also evidence, mainly anecdotal, that severely depressed people may lose the ability to shed tears.

Under the isomorphism assumption, the generalization of these individual-level findings to country-level results in the following hypothesis:

*Hypothesis 5:* Individuals living in countries with higher population scores on neuroticism and extraversion cry more often than individuals from countries with lower scores on both personality features.

Extending the reasoning about personality differences to gender differences in personality is straightforward (i.e., more gender differences in crying would be expected in countries with larger gender differences in neuroticism and extraversion). However, as currently no country data are available about gender differences in personality; it is not possible to formulate a hypothesis with respect to this issue.

## *The Present Study*

We examine crying tendency and recency of last crying spell in 37 countries. These data were collected in the context of the International Study on Adult Crying (ISAC; Becht & Vingerhoets, 2002). The present study examines whether country differences in crying can be better regarded as an indicator of distress, as an indicator of cultural norms about the expression of distress (see Scheff, 1979), or as a result of differences in personality. In addition, hypotheses about cross-cultural gender differences in crying which are derived from these two models are evaluated.

## **Method**

### *Participants*

Participants were 2,497 (43.7%) men and 3,218 (56.3%) women. The majority of them (86.5%) were students, who took part to fulfill course requirements. They had a mean age of 23.4 ( $SD = 7.0$ ), ranging from 16 to 74 years. Samples from 37 countries from the following regions were included in the study: Africa ( $N = 3$ ), Asia ( $N = 6$ ), Caribbean ( $N = 1$ ), Europe ( $N = 18$ ), Middle East ( $N = 2$ ), North America ( $N = 1$ ), Oceania ( $N = 2$ ), and South America ( $N = 4$ ). Sample sizes and gender distribution per country are presented in Table 1.

**Table 1.** Mean Scores Per Country on the Two Crying Scales for Males and Females

	Crying variables <sup>a</sup>					
	Tendency to cry		Time since last crying episode		N of respondents	
	Male	Female	Male	Female	Male	Female
Australia	3.22	6.00	3.63	2.67	63	183
Austria	3.66	6.10	4.24	3.36	29	50
Belgium	2.92	5.91	4.53	3.20	51	171
Brazil	3.97	6.88	4.48	3.37	174	245
Bulgaria	3.58	5.59	5.14	3.61	50	51
Chile	3.43	6.40	4.09	2.60	53	55
China	3.38	5.17	5.13	3.75	72	103
Finland	3.11	6.57	4.07	2.92	55	49
Germany	3.89	6.61	4.15	3.02	39	50
Ghana	3.80	5.28	5.11	4.50	54	53
Greece	3.11	5.67	4.54	2.92	37	79
Hungary	3.65	5.70	4.18	2.98	34	48
Iceland	2.51	5.96	5.04	3.42	146	180
India	3.23	5.05	4.85	3.36	162	112
Indonesia	3.06	5.61	5.11	3.39	53	118
Israel	2.80	6.28	4.15	3.10	47	50
Italy	4.46	6.25	4.54	2.88	35	79
Jamaica	3.18	6.24	4.82	3.50	34	64
Japan	2.79	4.90	4.95	3.80	201	80
Kenya	3.81	5.40	4.82	3.78	85	82
Korea	3.47	5.61	5.06	3.18	187	228
Lithuania	2.79	5.90	4.43	2.94	53	135
Malaysia	2.26	5.40	5.42	3.91	43	48
Nepal	3.55	5.19	4.83	4.40	53	47
Netherlands	2.66	6.05	4.79	2.88	85	78
New Zealand	3.50	5.84	3.88	2.96	26	49
Nigeria	3.49	4.43	5.47	4.61	57	41
Peru	3.95	5.40	4.91	4.15	45	48
Poland	2.47	5.66	4.85	3.00	53	56
Portugal	2.81	6.30	4.95	3.03	63	64
Romania	3.23	5.30	4.75	3.40	77	91

(continued)

**Table 1. (continued)**

	Crying variables <sup>a</sup>					
	Tendency to cry		Time since last crying episode		N of respondents	
	Male	Female	Male	Female	Male	Female
Spain	3.42	6.59	4.86	3.00	50	51
Sweden	3.81	6.96	4.18	2.38	47	50
Switzerland	2.53	6.19	4.96	3.33	51	67
Turkey	4.04	6.35	4.46	2.83	50	52
United Kingdom	2.60	5.49	4.29	3.34	32	51
United States	3.61	6.34	3.73	2.53	51	160

a. Crying variables were taken from the ISAC Questionnaire but not represented in this way before, i.e., split up by country (Vingerhoets & Cornelius, 2001).

### Measures

Both crying measures were taken from the questionnaire applied in the ISAC (Vingerhoets & Cornelius, 2001). In some countries the questionnaires were completed in classes, in other countries the questionnaires were filled out at home. The inventory contained questions focusing on several aspects of crying, including crying tendency, the supposed role of crying for emotional recovery, and implicit theories on determinants of crying. In the present study, we only analyzed data on the first aspect. This aspect was assessed by two items addressing the General Tendency to Cry (10-point scale, ranging from *hardly* to *very easily*) and the Time Elapsed Since Last Crying Episode (7-point scale, ranging from *less than one day ago* to *more than a year ago*). Thus, the first variable measured crying proneness as a relatively stable trait, whereas the second can be assumed to reflect (self-reported) actual crying behavior (Scherer, Matsumoto, Wallbott, & Kudoh, 1988). It was assumed that those who report a shorter delay tend to cry more frequently; a high delay score indicates a longer time since the last crying episode. The validity of this measure is supported by the strong negative associations (between  $-.60$  and  $-.70$ ) with estimates of the respondents' past 4 weeks crying frequency. However, scores for the Time Elapsed Since Last Crying Episode variable showed less skewness than the item asking directly about crying frequency, due to the large number of males reporting that they have not cried at all or just once in the past 4 weeks.

### Country-Level Indicators

To examine our hypotheses, country mean scores for men and women on the two crying variables were related to a number of country indicators (see Table 2). The indirect country-level operationalizations that we use in the present study are proxies of underlying attributes. For example, there is no single, direct measure of distress at country level. Therefore, we use multiple indicators and interpret convergence of correlations with crying parameters as supporting the validity of a model of country-level differences in these parameters. The approach we adopted, examining the convergence of correlations of target variables (crying) with these proxies, is a common way in construct validation research to avoid the bootstrap problem that the proxies themselves have to be validated (Cronbach & Meehl, 1995).

*Distress model.* First, various presumably relevant indicators of distress-related country indicators were used. The mean level of depression score (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was based on aggregated individual-level data of three versions of the BDI (short version and full versions of 1961 and 1978) and was reported by Van Hemert et al. (2002). The total set consisted of 122 studies published between 1974 and 1999; the studies were mainly conducted among students and included 30 different countries (19 countries overlapping with the ISAC data set). Whereas the BDI scores as reported by Van Hemert et al. involve depressive mood in normal populations, the national prevalence rates of unipolar major depression (prevalence of depression) from 1998 indicate clinical depression (World Health Organization, 1999). We expected depression scores to be positively related to tendency to cry. Diener's measure of subjective well-being, based on aggregated individual-level data, was derived from Diener, Diener, and Diener (1995) and available for 29 countries in the ISAC data set. This measure combines scores from several surveys. We expected subjective well-being to be inversely related to crying (i.e., to the tendency to cry and recency of last crying spell).

Second, Van de Vliert (2007) suggested a measure of climate demandingness that takes into account deviations from average temperature instead of just the absolute highest or lowest temperature values. The demandingness of the climate was calculated by taking the sum of squared values of minimal and maximal temperature (in degrees Celsius) minus 22 in the hottest summer month and minimal and maximal temperature minus 22 in the coldest winter month (available for all countries). In line with the reasoning that more distress is associated with more crying, we followed Van de Vliert's reasoning by predicting a positive correlation between demanding climate and crying.

**Table 2.** Descriptives of Context Variables (Distress Model, Expressiveness Model, Personality Model)

	Min	Max	<i>M</i>
	-1.02 (Netherlands)	1.64 (Turkey)	
Level of depression ( <i>N</i> = 19)			0.05
Prevalence of depression ( <i>N</i> = 37)	.62 (Australia, Japan, Korea)	1.18 (Indonesia, Nepal)	0.91
Subjective well-being ( <i>N</i> = 29)	-1.92 (China)	1.11 (Iceland)	-0.08
Demandingness climate ( <i>N</i> = 37)	356 (Indonesia)	3660 (Lithuania)	1749.8
Gross national product per capita ( <i>N</i> = 34)	160 (Nepal)	21330 (Switzerland)	6373.82
Purchasing power parity 1997 ( <i>N</i> = 37)	880 (Nigeria)	28740 (United States)	12419.46
Civil rights ( <i>N</i> = 28)	4.41 (Sweden)	12.58 (China)	6.99
Level of democracy 1990 ( <i>N</i> = 26)	2 (China, Bulgaria, Romania)	14 (11 West European countries, United States, Japan)	10.85
Religiosity ( <i>N</i> = 22)	-2.07 (Poland)	1.23 (Lithuania)	-0.23
Individualism ( <i>N</i> = 30)	13 (Hungary)	91 (United States)	48.53
Power distance ( <i>N</i> = 30)	11 (Austria)	104 (Malaysia)	52.93
Density ( <i>N</i> = 34)	2 (Australia)	361 (Netherlands)	120.09
Ethnic/linguistic homogeneity ( <i>N</i> = 36)	0.01 (Portugal)	0.89 (India)	0.24
Uncertainty avoidance ( <i>N</i> = 30)	13 (Jamaica)	112 (Greece)	65.17
Extreme response style ( <i>N</i> = 18)	0.20 (United Kingdom)	0.56 (Portugal)	0.30
Neuroticism (Big Five; <i>N</i> = 18)	46.30 (Sweden)	57.10 (Spain)	52.52
Neuroticism (EPQ; <i>N</i> = 22)	5.36 (Sweden)	18.34 (Greece)	13.79
Extraversion (Big Five; <i>N</i> = 18)	40 (Korea)	50.60 (Sweden)	46.25
Extraversion (EPQ; <i>N</i> = 22)	13.01 (China)	24.69 (Nigeria)	19.26
Gender Development Index ( <i>N</i> = 28)	0.44 (Nigeria)	0.95 (Australia)	0.82
Gender Empowerment Measure ( <i>N</i> = 37)	0.29 (Turkey)	0.85 (Sweden)	0.66
Masculinity ( <i>N</i> = 30)	5 (Sweden)	95 (Japan)	50.77
Gender Stereotype differentiation ( <i>N</i> = 15)	430 (India)	934 (Netherlands)	635.40

Note: Meaning and origin of the context variables is described in the Method section (Country-Level Indicators). Sample sizes indicate the number of countries for which information was available.

Living conditions were operationalized as follows: (a) Gross National Product per Capita was taken from the Georgas and Berry (1995) database (available for 34 countries) and (b) Purchasing Power Parity (available for all countries) represents the price of a fixed basket of goods and services in international dollars (World Bank, 1998).

Finally, to test the Gender Differences in Distress Hypothesis, the Gender-Related Development Index (GDI; available for all countries) for 2006 was used, which measures the average achievement of a population in important life domains (life expectancy at birth, adult literacy rate, gross school enrolment ratios, and share of earned income) downwardly adjusted for larger gender inequalities. More gender discrepancies in a country thus are reflected in lower scores (United Nations, n.d.). Individuals living in countries with high GDI scores experience on average fewer distressing life conditions than individuals living in countries with low GDI scores. In addition, a high GDI index points to a combination of high achievements in the domains mentioned and small gender differences. In line with the crying-as-distress hypothesis, we anticipated that a higher index (which indicates that both men and women have access to more resources) would be related to smaller gender differences in crying.

*Emotional expressiveness model.* Variables for political freedom included Gupta, Jongman, and Schmid's (1994) combined indicators for the observance of civil rights (28 countries), such as the absence of searches without warrant, independent courts, the practice of assumed innocence until proven guilty, and freedom to teach ideas, as described by Diener et al. (1995), and level of democracy in 1990 (based on the Freedom House scores, reported by Inglehart, 1997; 22 countries). In line with the Expressiveness Hypothesis, it was anticipated that political liberty and democracy would be positively related to crying levels.

Our operationalization of religiosity consisted of factor scores based on 13 items of the 1998 ISSP ZA Study 3190 on Religion II, which we selected from a larger number of indices to form a scale of religiosity. Included items were related to believing in life after death, heaven, hell, feelings about God, praying practices, and conceptions about God and self as a religious person. Factor analysis resulted in a one-factor solution (eigenvalue 10.72, explaining 82.48% of variance), Cronbach's alpha was .95. This religiosity measure (based on aggregated individual-level data) was available for 22 countries.

Hofstede's (1980, 2001) Individualism Index was used and expected to be positively related to crying, whereas power distance was expected to be negatively related to crying (both available for 30 countries).

A few measures served as indicators for tightness–looseness. Chan, Gelfand, Triandis, and Tzeng (1996) suggested measuring tightness–looseness by (among other things) population density, homogeneity, and uncertainty avoidance. Data for 34 countries on density (number of inhabitants per square kilometer) were taken from the Georgas and Berry (1995) database. The Ethnic and Linguistic Homogeneity Index 1960–1965, as reported by Kurian (1984), served as an indicator for homogeneity (available for 36 countries). In addition, Hofstede’s (1980, 2001) uncertainty avoidance was used (available for 30 countries). Finally, we used an indicator for the extent to which people in different societies express extreme opinions. Extreme response style was calculated on the basis of several aggregated individual-level data sets of the International Social Survey database (ISSP), across a number of years (Van Dijk, Datema, Piggen, Welten, & Van de Vijver, 2009). The total number of extreme responses (1 and 5 on a 5-point scale) was divided by the total number of items, resulting in an index from 0 to 1, where 1 represents *maximal extreme responding*. Data were available for 18 countries in the ISAC data set. We expected the first three indicators to be negatively and extreme response style to be positively related to crying.

To evaluate the Gender Differences in Expressiveness Hypothesis, three measures of gender differentiation were used. The first was the Gender Empowerment Measure (GEM) for 2006 (United Nations, n.d.; available for 29 countries), which captures female power (as compared to male power) by measuring gender inequality in political participation and decision making (as measured by women’s and men’s percentage shares of parliamentary seats), economic participation, and decision-making power (as measured by women’s and men’s percentage shares of positions as legislators, senior officials and managers, and women’s and men’s percentage shares of professional and technical positions), and power over economic resources (as measured by women’s and men’s estimated earned income). Higher scores indicate more power for women. Whereas the GDI captures the access of both genders to resources, the GEM is a more relative measure that represents gender differences in access. The GEM is expected to correlate negatively to gender differences in crying. The second is Hofstede’s (1980, 2001) masculinity–femininity, which is a country-level measure of distribution of gender roles (30 countries). Higher levels indicate more masculinity, that is, a larger gap in roles of men and women. We predict gender differences in crying to be negatively related to femininity. Finally, Williams and Best’s (1990) aggregated individual-level scores for gender stereotype differentiation in 15 countries were used; higher scores indicate more differentiation in gender stereotypes.



More gender differences in crying were expected in countries in which the male and female stereotypes show more differences.

*Personality model.* Country scores on the neuroticism and the extraversion scale from the aggregated individual-level NEO-PI data (Big Five; Costa & McCrae, 1992) were provided by McCrae (2002) for countries in the ISAC data set; in line with individual-level findings, we expected neuroticism and extraversion to be positively related to crying. Aggregated individual-level scores for the same two scales using Eysenck's Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975) were derived from Van Hemert, Van de Vijver, Poortinga, et al. (2002).

*Analyses.* The Distress, Expressiveness, and Personality Hypotheses were tested by examining the associations of the different country-level indicators to female and male crying scores. Testing the two gender hypotheses (i.e., the Gender Differences in Distress Hypothesis and the Gender Differences in Expressiveness Hypothesis) involved correlating the four gender-related country-level indicators to absolute gender differences in crying.

## Results

### *Descriptives*

Mean nation scores on the two ISAC variables are shown in Table 1 for men and women separately. Across all countries, mean scores differed significantly for men and women for both scales ( $p < .001$ ). Similarly,  $t$  tests within each country revealed significant differences ( $p < .05$ ), with women displaying a stronger tendency to cry and reporting shorter periods since the last crying episode. In three countries these gender differences, although in the expected direction, failed to reach statistical significance: Ghana (Time Since Last Crying:  $t(104) = 1.86$ ;  $p < .07$ ), Nepal (Time Since Last Crying:  $t(98) = 1.18$ ;  $p < .24$ ), and Nigeria (Tendency to Cry:  $t(95) = -1.58$ ;  $p < .12$ ). Effect sizes (Cohen's  $d$ ) for the difference between female and male scores, weighted for the respective sample sizes, were 1.11 for Tendency to Cry and  $-0.94$  for the Time Since Last Crying Episode (a high score indicates longer time since the last crying episode). Using Cohen's (1992) criteria of 0.20, 0.50, and 0.80 as cutoff values for small, medium, and large effects, the difference between males and females for Tendency to Cry and Last Crying is large. Compared to men, women cry more often. The correlation between the Time Since Last Crying Episode and the Tendency to Cry was strongly negative ( $r = -.73$ ,  $p < .01$ ).

## Country-Level Correlations

Table 3 shows country-level correlations for men and women for the two crying scales. Patterns of correlations were more or less similar for men and women, but the associations were stronger for females. The Tendency to Cry and Time Since Last Crying Episode scales appeared to show a similar pattern of correlations with context variables, but with opposite signs.

*Distress hypothesis.* Correlations with the distress indicators revealed that crying tendency and reported behavior at the country level were not significantly related to depression scores but (except for male Tendency to Cry) rather related to subjective well-being, in the sense that happier countries report *more* crying. In line with this, affluent countries report more rather than less crying. This finding seems in contradiction with the concept of crying as a measure of distress. The only distress prediction that was confirmed involved demandingness of climate; countries with a more demanding climate showed less time since their last crying episode, indicating that harsher climates are associated with more crying.

In an attempt to check whether Van de Vliert's (2007) finding of an interaction effect between climate and wealth could be verified, we performed correlational analyses on two subsets, that is, countries with a GNP lower than US\$ 10,000 ( $N = 22$ ) and countries with a GNP higher than US\$ 10,000 ( $N = 12$ ). Patterns of correlations with Van de Vliert's demanding climate variable were similar for the two subsets for Time Since Last Crying Episode but not for the Tendency to Cry; only in wealthy countries a positive correlation with demanding climate was found ( $r = .58, p < .05$ ). This is in contrast with Van de Vliert's findings, which pointed to a role for climate in less wealthy countries rather than in wealthier countries.

*Expressiveness hypothesis.* Countries in which individuals enjoy more freedom in terms of civil rights and democracy reported more crying, and the same holds for individualist countries and countries with less hierarchy (power distance). In contrast, there was no effect for religiosity. The four variables that were selected for defining tight and loose societies were not correlated significantly with crying in the expected direction.

*Personality hypothesis.* In contrast with individual-level findings, both neuroticism scores (Five-Factor Model and EPQ) were not significantly related to crying. In contrast, Big Five extraversion was significantly and positively related to the crying variables, at least for women. This personality characteristic even emerged as the best predictor of cross-cultural differences in crying. However, no significant correlations were found for the EPQ extraversion

**Table 3.** Country-Level Correlations Between the Crying Scales and Context Variables for Males and Females (Distress Model, Expressiveness Model, Personality Model)

	Crying variables			
	Tendency to cry		Time since last crying episode	
	Male	Female	Male	Female
<b>Distress model</b>				
Level of depression ( <i>N</i> = 19)	.29	-.36	.23	.23
Prevalence of depression ( <i>N</i> = 37)	.07	-.16	.28	.30
Subjective well-being ( <i>N</i> = 29)	-.18	.58**	-.54**	-.45*
Demandingness climate ( <i>N</i> = 37)	-.10	.30	-.34*	-.53**
Gross national product per capita ( <i>N</i> = 34)	-.14	.43*	-.48**	-.46**
Purchasing power parity 1997 ( <i>N</i> = 37)	-.23	.48**	-.48**	-.54**
<b>Expressiveness model</b>				
Civil rights ( <i>N</i> = 28)	-.08	.42*	-.45*	-.40*
Level of democracy 1990 ( <i>N</i> = 26)	-.07	.52**	-.39*	-.41*
Religiosity ( <i>N</i> = 22)	-.15	.05	.23	-.27
Individualism ( <i>N</i> = 30)	-.10	.41*	-.61**	-.52**
Power distance ( <i>N</i> = 30)	-.02	-.48**	.66**	.48**
<b>Tightness-looseness</b>				
Density ( <i>N</i> = 34)	-.37*	-.18	.19	.06
Ethnic/linguistic homogeneity ( <i>N</i> = 36)	-.02	.50**	-.31	-.54**
Uncertainty avoidance ( <i>N</i> = 30)	.07	-.00	.00	-.11
Extreme response style ( <i>N</i> = 18)	-.01	-.26	.42	.45
<b>Personality model</b>				
Neuroticism (Big Five; <i>N</i> = 18)	-.11	-.22	.30	.30
Neuroticism (EPQ; <i>N</i> = 22)	-.10	-.17	.05	.04
Extraversion (Big Five; <i>N</i> = 18)	.42	.76**	-.72**	-.60**
Extraversion (EPQ; <i>N</i> = 22)	-.09	-.03	-.18	-.06

Notes: Meaning and origin of the context variables is described in the Method section (Country-Level Indicators). Sample sizes indicate the number of countries used to calculate the correlation.

\* $p < .05$ . \*\* $p < .01$ .

scale. Poortinga, Van de Vijver, and Van Hemert (2002) already noted that these two extraversion scales are not related at country level, probably because the EPQ items relate mainly to sociability, whereas the NEO-PI-R Extraversion facets also include assertiveness, activity, and excitement seeking. Apparently, it is not so much the extent to which countries show high friendliness, but rather the extent to which countries allow for assertive behavior (i.e., individual expressiveness) that is related to crying.

*Controlling for affluence.* All categories of variables that showed significant associations with the crying variables are known to represent a dimension on which countries can be compared, namely affluence (Georgas, Van de Vijver, & Berry, 2004). Therefore, the analyses were complemented by computing partial correlations between the crying variables and the country-level variables, controlling for Gross National Product per capita. One of the few remaining, significant correlations was an indicator listed under the Distress Hypothesis: the correlation between subjective well-being and Tendency to Cry for females ( $r = .44$ ;  $p < .05$ ). Significant partial correlations for the Expressiveness Hypothesis included *density* with Tendency to Cry ( $r = -.35$ ;  $p < .05$ ) and with Time Since Last Crying Episode ( $r = .36$ ;  $p < .05$ ) for males, *homogeneity* with Tendency to Cry ( $r = .73$ ;  $p < .01$ ) and with Time Since Last Crying Episode ( $r = -.53$ ;  $p < .05$ ) for women. Tendency to Cry and Time Since Last Crying Episode were significantly related with extraversion as measured by the NEO-PI-R (men:  $r = .51$  ( $p < .05$ ) and  $-.68$  ( $p < .01$ ); women:  $r = .73$  ( $p < .01$ ) and  $-.53$  ( $p < .05$ ), respectively).

*Gender differences in the distress hypothesis and in the expressiveness hypothesis.* Table 4 displays correlations between the absolute difference scores of female and male scores on the crying scales with the four gender-related context variables. The positive correlations between Tendency to Cry and GDI indicate that a higher level of resources for men and women is related to larger gender differences in crying tendency. This finding contradicts the Gender Differences in Distress Hypothesis. Apparently, there are larger gender differences in crying when both men and women have access to more resources.

Results for the Gender Differences in Expressiveness Hypothesis were mixed. As expected, male-female differences in crying were positively related to gender differentiation stereotypes. However, correlations with femininity did not confirm our expectations. Only the association between femininity and both the Tendency to Cry and the Time Since Last Crying Episode was significantly positive.

To shed more light on these findings, we explored the links between absolute gender difference scores on the crying scales with the set of country indicators used previously (Table 5). This analysis revealed that gender

**Table 4.** Country-Level Correlations Between the Female-Male Differences<sup>a</sup> in Crying Scales and Gender-Related Context Variables (Distress Model, Expressiveness Model)

	Gender differences on crying variables	
	Tendency to cry	Time since last crying
Distress model		
Gender Development Index ( <i>N</i> = 28)	.52**	-.12
Expressiveness model		
Gender Empowerment Measure ( <i>N</i> = 37)	.69**	.41*
Femininity ( <i>N</i> = 30)	.21	.38*
Gender stereotype differentiation ( <i>N</i> = 15)	.58*	.41

Note: Meaning and origin of the context variables is described in the Method section (Country-Level Indicators). Sample sizes indicate the number of countries used to calculate the correlation.

a. Female-male differences were absolute differences between the female mean scores and the male mean scores in each country.

\* $p < .05$ . \*\* $p < .01$ .

differences in the Tendency to Cry are larger in societies that are higher in subjective well-being, are higher in economic and political stability, endorse more individualist values, and are less hierarchical. After controlling for Gross National Product per Capita, the gender difference in Tendency to Cry was significantly related to depression as measured by the BDI ( $r = -.44$ ;  $p < .05$ ), subjective well-being ( $r = .52$ ;  $p < .01$ ), Purchasing Power Parity ( $r = .39$ ;  $p < .05$ ), and Ethnic/Linguistic Homogeneity ( $r = .34$ ;  $p < .05$ ). One significant correlation remained for Time Since Last Crying, with Ethnic/Linguistic Homogeneity ( $r = .37$ ;  $p < .05$ ). In summary, men and women differ most in their reported crying behavior in wealthy countries, and especially in countries that report high levels of happiness and that are ethnically more homogeneous.

## Discussion

The present study addressed the relationship between culture and crying by analyzing data from 37 countries. Data on self-reported crying behavior and crying proneness, collected in the context of the International Study on Adult

**Table 5.** Country-Level Correlations Between the Female-Male Differences<sup>a</sup> in Crying Scales and Context Variables (Distress Model, Expressiveness Model, Personality Model)

	Gender differences on crying variables	
	Tendency to cry	Time since last crying
<b>Distress model</b>		
Level of depression (N = 19)	-.59**	-.01
Prevalence of depression (N = 37)	-.18	-.08
Subjective well-being (N = 29)	.66**	-.14
Demandingness climate (N = 37)	.32	.32
Gross national product per capita (N = 34)	.46**	.09
Purchasing power parity 1997 (N = 37)	.56**	.17
<b>Expressiveness model</b>		
Civil rights (N = 28)	.44*	-.08
Level of democracy 1990 (N = 26)	.53**	.07
Religiosity (N = 22)	.18	.10
Individualism (N = 30)	.43*	-.02
Power distance (N = 30)	-.40*	-.16
<b>Tightness-looseness</b>		
Density (N = 34)	.12	.14
Ethnic/linguistic homogeneity (N = 36)	.43**	.38*
Uncertainty avoidance (N = 30)	-.06	.17
Extreme response style (N = 18)	-.21	.09
<b>Personality Model</b>		
Extraversion (Big Five; N = 18)	.25	-.11
Extraversion (EPQ; N = 22)	.04	.17
Neuroticism (Big Five; N = 18)	-.09	.03
Neuroticism (EPQ; N = 22)	-.08	.02

Note: Meaning and origin of the context variables is described in the Method section (Country-Level Indicators). Sample sizes indicate the number of countries used to calculate the correlation.

a. Female-male differences were absolute differences between the female mean scores and the male mean scores in each country.

\* $p < .05$ . \*\* $p < .01$ .

Crying (ISAC; Becht & Vingerhoets, 2002), were used to establish an exploratory nomological network of country-level crying. More precisely, correlations with a set of sociocultural indicators were calculated to be able to interpret

and understand country differences in crying. The consistency of correlations across proxies supported the construct validity of our interpretations.

### *Nature of Crying*

Three models were evaluated that specify the connection between crying and country characteristics. The Distress Model conceptualizes crying as the reflection of distress, and leads to the hypothesis that in more demanding countries (in terms of economic circumstances and climate) one cries more often than in less demanding countries. We did not find strong support for this hypothesis. In contrast, crying was positively associated with happiness and wealth (directly arguing against the crying-as-distress perspective). However, the positive correlation between demandingness of the climate and self-reported crying behavior may be considered as congruent with the distress hypothesis. The alternative Expressiveness Model views crying as a form of emotional expressiveness and expects that individuals in countries that are looser and allow more freedom of expression of individual feelings cry more often than individuals in more restricted countries. This hypothesis was by and large supported: respondents in democratic and individualistic countries reported more crying. Partial correlations controlling for affluence provided further evidence for the impact of expressiveness beyond wealth. The Personality Model was also partially confirmed to the extent that participants in countries with high levels of extraversion reported more crying. In addition, differential patterns for extraversion measures based on sociability versus assertiveness illustrated the nature of crying at country level. To summarize, the present findings suggest that people tend to cry more frequently when they live in wealthier, more democratic, more individualistic, or less hierarchical countries, with more demanding climates or countries with a higher level of (Big Five) extraversion.

If crying tendency would be predominantly an indicator of distress, a negative association with well-being would have been expected. However, if crying is regarded as an emotional expression and a larger tendency and frequency of crying is considered as being an indication of fewer cultural restrictions on the expression of emotions, the positive correlation between crying and well-being becomes more obvious and understandable. To put it differently, our findings suggest that cross-cultural differences in crying should be conceptualized as resulting from more tolerance of self-disclosure and less strict display rules for showing emotions. In the current study, this was operationalized as wealth, political freedom, and individualism, connected with allowance to express individual feelings, thoughts, and emotions, both positive

and negative. This finding is in line with results of a cross-cultural meta-analysis on emotion which demonstrated, emotional expression to be positively related to individualism and democracy, but not to wealth (Van Hemert et al., 2007).

Our indicators of the tightness–looseness dimension failed to explain differences in crying. This failure might be due to the multiinterpretability of the tightness–looseness concept in relation to expressiveness; strict norms on expressiveness could either encourage or discourage crying.

A noteworthy finding was the strong negative association between crying frequency and demandingness of climate, showing that more tears are shed in moderate climates than in extreme cold or warm climates. This finding was contrary to expectations, because previous research has revealed that in warmer countries people are more emotionally expressive (Pennebaker et al., 1996). Possibly, our finding is related to lifestyles in different climates; people in warmer countries generally spend more time until rather late on the streets and in public places, whereas in cold countries one is more often at home, alone, or with intimates. As crying predominantly occurs within the intimacy of one's own home in the early evening hours, the more frequent crying in colder countries may be explained by the fact that individuals in such countries spend more time at home and less outside in public places (Vingerhoets et al., 2001). These findings thus challenge Van de Vliert's (2007) model which predicts that climate is only important as an explanatory variable of values in less wealthy countries. In general, patterns of correlations were similar for both groups of countries; more specifically, high temperature was accompanied by less crying only in wealthy countries, whereas Van der Vliert's model limits this relation to poor countries.

### *Gender Differences in Crying*

Two gender-related hypotheses were examined, congruent with the Distress Model and the Expression Model. The Gender Differences in Distress Hypothesis was not confirmed. Less access to economic resources by men and women was associated with smaller rather than larger gender difference in crying. This finding confirms that wealth stimulates crying through expressiveness, as already observed in the first series of analyses. Indeed, the Gender Differences in Expressiveness Hypothesis was supported to some extent. Gender stereotype differences appeared to show similar correlation patterns as crying differences, and the fact that correlations were significant for crying tendency but not for (self-reported) crying behavior further suggests that ideas about proper behavior for men and women explain part of the variance.



The larger gender difference in crying among wealthier and more individualist countries is a remarkable finding, although similar cross-cultural patterns were found for gender differences in personality traits (women tend to be higher on neuroticism, agreeableness, and warmth and men higher on assertiveness) (Costa et al., 2001), depression (Nolen-Hoeksema, 1987), gender stereotypes (Williams & Best, 1990), and romantic attachment (Schmitt et al., 2003). There is an ongoing debate on how to explain these counterintuitive findings, as the main theories do not seem to be adequate: Cross-cultural variance in the size of gender differences rules out evolutionary explanations (e.g., Buss, 1995; but see Schmitt, Realo, Voracek, & Allik, 2008, for an explanation in terms of gene-environment interactions), and the social role model (Eagly & Wood, 1991; Wood & Eagly, 2002) would predict gender differences to be larger in more traditional societies as opposed to modern cultures rather than the other way around. Gender differences in crying tendency and reported crying behavior were large in almost all countries. Although the behavioral crying measure was also based on self-reports, it might be less influenced by culture-specific norms of appropriate conduct. Some authors (e.g., Costa et al., 2001; Schmitt et al., 2003) have suggested that individuals from modern cultures, where male and female roles are psychologically less distinct, tend to compare themselves to individuals from both genders when asked to describe themselves, thereby introducing more variance than individuals from more traditional societies, who presumably limit their comparison to members of the same gender. An alternative explanation might be that the larger expressiveness of women in Western countries is the result of more tolerance of the expression of emotions in these countries. Women in non-Western countries perhaps show more normative control in the inhibition of their emotional expressions, which would imply that cultural norms attenuate the gender differences in crying (see also Schmitt et al., 2008). Finally, attribution processes may be responsible for these results (Allik & McCrae, 2002). In individualistic cultures, respondents may be more inclined to interpret an individual's behavior as idiosyncratic, whereas respondents from more collectivistic countries would be more likely to rate the same behavior in terms of gender roles. So, gender differences in crying scores, as well as in other self-report measures such as gender-stereotype variables, might be the reflection of strong ideas about gender roles in less wealthy countries and a focus on individual autonomy in wealthier countries. Larger gender differences in wealthier countries were only found for crying tendency but not for behavior, providing additional support in favor of the attribution explanation.

Lombardo, Cretser, and Roesch (2001) compared gender differences in crying in the United States in the early eighties of the last century and mid-nineties,

a period characterized by major changes in gender roles. However, the nature and amplitude of the gender differences in crying were similar. This suggests that there seems to be robustness in the findings and that these cultural changes are not necessarily associated with changes in crying patterns. If, as we argue, changes in crying may be mainly a consequence of changes in prescriptive norms, a period of 15 years may be too short to perceive any differences, as substantial changes in such norms probably need more time to settle. In addition, we have until now little understanding of how seemingly futile differences in the applied methods may influence the findings. Fisher et al. (2004) also investigated the relation between gender differences in crying (alternatively operationalized) and GEM in 37, partly different, countries, but they failed to find a clear connection with GEM, which sharply contrasts with our rather strong positive associations.

A major limitation of the present study is that we have assessed crying with just one item. Although there is evidence in support of the validity of this measure, and we feel that this method is superior to some other one-item methods (e.g., frequency estimates) we are aware that our findings await cross-validation employing longer measures of crying.

### *Implications*

The current findings suggest that the nomological network of crying at the country level differs in some important respects from that at the individual level. Reported positive associations between crying and neuroticism in individuals (Vingerhoets, Van Tilburg, et al., 2001) are in seeming contrast with the here reported findings at the country level of analysis: Crying is more closely associated with extraversion than with neuroticism. Also, we failed to establish a link between depression and the shedding of emotional tears at the country level. The aggregation of the scores to a higher level of analysis apparently influences the mutual relationships between variables, as found at the individual level. Whereas at the individual level, within the context of a given culture, it makes sense to conceptualize crying frequency as an index of distress, country averages apparently more likely reflect levels of expressiveness.

### **Conclusion**

We have provided preliminary evidence suggesting that crying at the level of countries can be conceptualized as being connected with emotional expressiveness and personality rather than with distress. Crying scores of countries

are *positively* related to subjective well-being, extraversion, wealth, political freedom, and individualism. Historians are more familiar with such connections and may point to episodes in which crying, also in a public, context was very much accepted (e.g., 17th century France and Germany; Page Bayne, 1981) followed by periods in which emotional constraint was considered more appropriate. Gender differences in the self-reported Tendency to Cry also appeared to be larger in countries that are wealthier, more egalitarian, more democratic, and more individualist. These cross-cultural gender differences are also more in line with a model that emphasizes the role of cultural norms about crying. If crying is merely viewed as a symptom or a sign of distress, it is difficult to explain why people living in more affluent countries tend to shed more tears than people living in less affluent countries and why women living in countries in which they have relatively much power (as compared to men) cry more often than women in countries in which they have less power. However, such a pattern would be predicted if crying is seen as a behavior that is influenced by cultural norms about how free individuals are to express their emotions.

### **Acknowledgments**

The authors appreciate the efforts of Marleen Becht and all ISAC collaborators<sup>1</sup> in data collection and data entry.

### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### **Note**

1. Cinthy Gallois and Matthew Jones, University of Queensland, Australia; Harald Wallbott, University of Salzburg, Austria; Filip de Fruyt and Anette Cathrin Nilsen, University of Ghent, Belgium; Pierre Philippot, Bernard Rimé and Emmanuelle Zech, University of Louvain-la-Neuve, Louvain-la-Neuve, Belgium; Ana Cristina Limongi and Juan Perez-Ramos, Universidade de São Paulo, Brasil; Elka Todorova, Institute of Sociology, Sofia, Bulgaria; Eugenia Vinet, Universidad de la Frontera, Temuco, Chile; Sun Yuming, Nanjing Normal University, Nanjing, China; Zheng Xue, South China Normal University, Guangzhou, China; Samir Farag, Institute for Strategic Sciences, Cairo, Egypt; Ahmed El Azayem, Abou El Azayem Institute,

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