

Stereotypes of Emotional Expressiveness of Northerners and Southerners: A Cross-Cultural Test of Montesquieu's Hypotheses

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Montesquieu argued that residents of warmer climates are more emotionally expressive than those living in cooler ones. More than 2,900 college students from 26 countries completed a brief questionnaire assessing the degree to which they considered Northerners and Southerners within their own countries to be emotionally expressive. In addition, individuals rated themselves on their own degree of expressiveness. In partial confirmation of Montesquieu's hypothesis, it was found that large within-country North–South stereotypes exist. Especially in Old World countries, Northerners are viewed as less emotionally expressive than Southerners. Regression and other analyses revealed that self-ratings of expressiveness were, in fact, related to being from the South and to warmer mean temperatures. Several possible explanations for these effects are discussed.

In 1748, Charles de Secondat Montesquieu published his influential book *The Spirit of the Laws*. In some ways, this work could be considered one of the first social psychological analyses of the creation of norms and laws. Among his most intriguing hypotheses, Montesquieu (1748/1989) argued that a country's climate molded the character and social relationships of its residents. Laws, in his estimation, were then created to control human character shaped by the effects of climate and, to a lesser extent, terrain. According to Montesquieu, warmer climates made individuals more sensitive to emotions, pain, pleasure, and "an infinite number of small sensations." Cold weather, on the other hand, made individuals less attentive to their internal states.

In northern countries, a healthy and well-constituted but heavy machine finds its pleasures in all that can start the spirits in motion again: hunting, travels, war, and wine. You will find in the northern climates peoples who have few vices, enough virtues,

and much sincerity and frankness. As you move toward the countries of the south, you will believe you have moved away from morality itself: the liveliest passions will increase crime; each will seek to take from others all the advantages that can favor these same passions. (p. 234).

Drawing on early 18th century physiology, Montesquieu claimed that cold weather made the nerves less sensitive to all forms of stimulation. In contrast, warm weather caused the tissue of the skin to become more relaxed, allowing the nerve endings to become more exposed to all forms of sensations. This heightened sensitivity brought about by warm or hot weather was said to make individuals relatively lazy, pleasure seeking, and impulsive. To control for these behavioral tendencies, Montesquieu suggested that laws in warmer climates would be more explicit and strict in encouraging industriousness and regulating violence, sexual behaviors, and even the consumption of alcohol.

Even now, widely held beliefs and cultural stereotypes exist that are consistent with Montesquieu's propositions that people of cold climates are relatively dispassionate compared to the more expressive inhabitants of warm climates. The question arises, then, whether there is any evidence behind such apparently enduring stereotypical views. Data from three different research areas are relevant to answer this question: research in aggression and violent behavior, the subjective report of emotion, and work dealing with immediacy and nonverbal behavior.

Since the 19th century, there has been considerable scientific interest linking climate with crime and aggression. Hotter regions in a variety of countries have evidenced relatively higher violent crime rates than cooler regions. Interestingly, these temperature-linked effects have not been related to nonviolent crimes. In an impressive review of the literature, Anderson (1989) summarized violent crime studies within several European countries and the United States and concluded that the pattern of effects is sufficiently consistent to assume that warm

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Part of the research was supported by Grant SBR-9411674 from the National Science Foundation and Grant FRFC8.4510.94 from the Belgian National Foundation for Scientific Research. Kathy Davison, Ephrem Fernandez, Laura King, Amanda McCracken, Giampaulo Pedroso, Teal Pennebaker, Jane Richards, Carmen Uhlmann, Anne Vano, Daryl Wansink, David Watson, and Jillian Young (all at Southern Methodist University) and Frédérique Delie (at Catholic University of Louvain) provided assistance in several phases of this research.

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weather promotes aggressive behavior. Brearley (1932), for example, in a study spanning from 1918 to 1929, found higher homicide rates in southern states than elsewhere in the United States. Historically, European studies also have reported higher murder rates in the warmer southern regions of England and Italy (Lombroso, 1899/1911). More recent studies among North Americans and Europeans, as well, have confirmed this North-South difference in aggressive crimes (e.g., Anderson, 1987; de Fronzo, 1984; Rosenfeld, 1986).

The major difficulty of associating geography with violent behavior is that several overlapping explanations exist. In many cases, climatic, historical, cultural, and economic differences may coincide within a country (cf. Rotton, 1986). However, studies conducted on particular regions find that hotter years, hotter quarters of the year, hotter months, and hotter days were all systematically associated with relatively higher rates of a wide variety of aggressive behaviors, including homicides, assaults, rapes, and spouse abuse (Anderson, 1989). These survey data are complemented by laboratory studies. Experimentally induced hot temperatures have been found to increase levels of hostile affect, hostile contagion, and physiological arousal (Anderson, Deuser, & DeNeve, 1995). Thus, there appears to be a plausible effect of climate on aggressive behaviors.

Perhaps the most difficult task for researchers is to isolate the degree to which apparent climate-based effects are due to temperature rather than to factors that typically covary with temperature, including economic factors, hours of sunlight, and so on. For example, higher latitudes are associated with cooler temperatures and more extreme variations in day-night cycles. In winter, residents in higher latitudes experience relatively few hours of sunlight compared to those living in lower latitudes. Recent epidemiological and laboratory studies have suggested that reduced sunlight may be associated with depression and other mood disturbances (Wehr, Sack, & Rosenthal, 1987). Changes in latitude also are correlated with economic variables. Nisbett and his colleagues (Nisbett, 1993; Cohen & Nisbett, 1994) have argued that violent behaviors in response to insults or self-protection are especially likely to occur among individuals living in herding as opposed to agricultural economies. Herding, it is posited, is a profession that demands constant vigilance against potential poachers. Consequently, in the United States, and presumably elsewhere, warmer regions with a rich history of herding should have a higher percentage of people who are much more likely to become violently expressive to protect their herds and, by extension, their honor.

Montesquieu's hypothesis extends beyond aggression to emotional experience in general. Although a considerable number of studies exist on cultural variations in emotions (cf. Mesquita & Frijda, 1992), most fail to consider climatic ingredients. Recently, however, Scherer and Wallbott (1994) conducted a questionnaire study across 37 countries investigating respondents' reactions across several hypothetical situations. Participants were asked to describe a situation that elicited strong emotions. Although the authors linked ratings of emotional intensity with various climatic variables on a country-by-country basis, most effects failed to attain significance. Scherer and Wallbott's study points to the central difficulty of testing Montesquieu's hypothesis: Cultural, linguistic, and economic differences among coun-

tries obscure meaningful social and psychological effects that can occur within countries.

In addition to crime rates and self-reported emotion, several studies have suggested that nonverbal expressive behaviors may be linked to climate. Particularly relevant in this context are the abundant data from cross-cultural investigations of immediacy and nonverbal behaviors. Immediacy behaviors are actions that simultaneously communicate warmth, closeness, and availability for communication—behaviors such as smiling, touching, and maintaining a close distance (Mehrabian, 1971; Patterson, 1983). Several authors (e.g., Andersen, 1985) have indicated that cultures evidencing a high rate of immediacy behaviors typically have warmer climates (e.g., Arab and Mediterranean countries) than those low in immediacy behaviors (e.g., Scandinavia, Germany, England, and Japan). Andersen (1985; Andersen, Lustig, & Andersen, 1987) noted that even in the United States, people in warmer latitudes tend to exhibit more contact than people in cold areas; for example, a .31 correlation was observed between the latitude of universities and touch avoidance.

Research to date is only partially supportive of Montesquieu's hypothesis. In studies conducted within single countries (the United States, Great Britain, and Italy), regional differences in aggression have been found. Furthermore, within-region studies have offered reasonably convincing evidence that temperature is causally implicated. Studies that have compared different countries with each other, however, have not yielded supportive results. Furthermore, neither between-region nor between-country research programs have been successful at isolating temperature versus other possible mechanisms in explaining differences in emotional expressiveness.

The purpose of the present article is to test two features of Montesquieu's hypothesis. First, Montesquieu was aware that his ideas were based on commonly held stereotypes of regional and national character. Our first question, then, was to assess the degree to which stereotypes of emotional expressiveness exist within a large array of cultures. That is, to what degree is the South-North stereotype prevalent? Second, Montesquieu believed that expressiveness stereotypes were more than stereotypes. That is, he argued that Southerners and Northerners were truly different in expressiveness due, in large part, to temperature variations. The second general question of the study, then, was to confirm if residents of southern regions of countries truly rate themselves as being more emotionally expressive than their northern counterparts, and, if such differences exist, ascertain the degree to which these differences could be attributable to temperature variations. To summarize:

1. Are Northerners and Southerners within their own countries stereotypically viewed as different among nations throughout the world? More specifically, are Southerners viewed as more emotionally expressive than Northerners—at least in the northern hemisphere? Is this effect reversed in the southern hemisphere?

2. By their own admission, do Northerners and Southerners differ in their self-views of emotional expressiveness? That is, is there a kernel of truth to stereotypes? Beyond the general proclivity to express emotions, are there real or stereotypical differences in the degree to which Northerners and Southerners

Table 1
Demographic Information of Countries Participating in Survey

Country	No. sites	N	% Female	Mean age	Δ Temp. (C)	$\Delta\%$ Grazing	Mean latitude
Australia	2	315	65.7	19.9	-8.0	-7.5	-22
Belgium	1	57	84.2	22.2	0.4	-3.1	51
Brazil	1	56	30.3	23.2	-7.8	23.0	-22
Canada	3	161	75.2	22.2	6.0	7.8	55
Chile	1	96	63.2	21.1	-12.2	-7.1	-34
Colombia	1	30	41.4	19.1	4.0	-22.0	4
Croatia	1	50	78.0	21.0	0.4	52.6	46
Cuba	1	40	57.5	32.9	0.0	21.9	21
England	1	46	69.6	21.4	9.0	-19.5	52
France	5	260	88.7	22.5	4.3	6.5	47
Germany	4	170	69.5	24.8	3.6	2.4	50
India	1	49	93.9	19.8	12.4	-4.2	17
Indonesia	1	32	56.3	27.4	0.9	0.0	-3
Italy	4	225	81.7	22.4	4.2	-10.8	42
Japan	2	87	56.3	23.4	7.6	1.9	32
Mexico	1	46	50.0	20.5	-3.1	-21.9	24
New Zealand	1	192	47.4	22.6	-5.5	-16.3	-41
Portugal	2	108	78.7	24.1	2.6	-4.8	39
Scotland	1	38	71.1	22.1	0.5	-9.9	57
Serbia	1	49	77.6	22.1	2.1	31.5	44
South Africa	1	41	67.5	21.4	-3.8	4.9	-33
Spain	3	147	71.9	22.5	4.1	3.8	37
Switzerland	2	99	83.8	23.1	0.7	-24.2	47
Tunisia	1	120	68.3	22.5	3.5	19.0	36
Turkey	1	24	54.2	38.6	5.0	42.5	37
United States	7	417	65.5	23.3	10.5	2.1	38
<i>Ms</i>	1.92	113.7	69.5	22.7	1.59	2.64	23.8

Note. *No. sites* refers to the number of universities returning questionnaires from the country. Δ temp. refers to difference in temperature (degrees Centigrade) of southern region minus northern. Δ grazing refers to change in the percentage of land mass devoted to grazing and herding in the southern region minus the northern. *Mean latitude* refers to the North-South midpoint of the country. Positive latitude scores refer to degrees above the equator; negative scores refer to degrees below the equator. Note that for the United States, all data refer only to the 48 contiguous states.

report feeling negative emotions, positive emotions, or feelings of constraint or inhibition?

3. To the degree that North-South differences exist, to what degree can they be attributed to variations in climate, latitude and variations in hours of sunlight, herding economies, or other factors?

Method

Participants

Faculty members in psychology and/or social science departments in more than 60 countries throughout the world were contacted and asked to administer a brief questionnaire to students in their undergraduate classes.¹ Where possible, at least two universities from different regions within a country participated. As depicted in Table 1, questionnaires from 52 universities in 28 countries were completed and returned. In two countries (Kenya and Ecuador), the number of questionnaires was fewer than 10 and were not included in the final analyses. The final sample comprised 2,963 students (69.5% female) with a mean age of 22.7 ($SD = 5.91$ years).

Questionnaire Construction

The questionnaire comprised four basic questions assessed in three different ways as well as essential demographic information. As can be seen in the Appendix, participants first rated themselves along four di-

mensions. The second and third group of questions asked participants to rate the degree to which they considered people in the northern part and, again, the southern part of their country to possess each of the four basic emotion-relevant traits.

The first question on which participants rated themselves and others

¹ We are indebted to a large number of individuals who administered questionnaires at their universities: D. Ajdukovic, Croatia; Domingo Asun, Santiago, Chile; Jean-Léon Beauvois, Grenoble, France; Stefano Boca, Padua, Italy; Charlie Bond, Texas Christian University, help in providing data from India; Alain Brossard and Anne-Nelly Perret-Clermont, Neuchatel, Switzerland; William Chaplin, University of Alabama, United States; Matty Chiva, Paris, France; Tom Cushman, State University of New York College at Oswego, United States; S. A. Darmayanto, Indonesia; Anita Delongis, University of British Columbia, Canada; Benjamin Dominguez, Mexico City, Mexico, and help in getting data from Cuba and Colombia; Heiner Ellgring, Wurzburg, Germany; Robert Emmons, University of California, Davis, United States; Ephrem Fernandez, help with data from University of Pittsburgh, United States, and University of Queensland, Australia; José-Miguel Fernandez-Dols, Madrid, Spain; Yomaira Garcia, Colombia; Robin Gilmour, Lancaster, England, and help in getting data from Scotland; Aydin Gozberk, Istanbul, Turkey; Jorge Grau and Edelsys Hernandez, Cuba; Ursula Hess and Arvid Kappas, Geneva, Switzerland; Françoise Joubaud and Jean Pailhous, Marseille, France; Gilles Kirouac, Université Laval, Québec, Canada; Abdelwahab Mahjoub, Tunis, Tunisia; Tony Manstead, Manchester, England; José Miguez, Porto, Portugal;

was the degree to which they were emotionally expressive. The remaining three items were based on the three emotion-relevant dimensions of Clark and Watson's (1990) General Temperament Survey (GTS): Negative Affectivity, Positive Affectivity, and Disinhibition (vs. Constraint). As can be seen in the Appendix, each of the three dimensions included a series of highly correlated adjectives, which served to give respondents a broad conception of each rating category and, at the same time, helped to overcome subtle differences that naturally occur in translations.

Questionnaire translations were provided by bilingual psychology faculty or students for each country. Back-translations were then made by independent bilingual speakers to ensure the integrity of the initial translations. Finally, slight variations in emotion term synonyms were included in several Spanish translations to account for variations in forms of language from country to country.

Archival Data: Regional Temperature and Herding Information

Mean annual temperatures for North versus South regions of countries were not available from any standard sources. To extrapolate this information, we averaged mean annual temperatures for selected cities in northern and southern regions on the basis of statistics collected by the Environmental Data Service (*World Almanac*, 1990). In some countries (e.g., Colombia, Serbia) temperatures were available only for a single city. In these cases, mean northern and southern temperatures were extrapolated from other cities of the same latitude and altitude in adjacent countries. Note that the general strategy of using mean annual temperature is conservative in that it fails to account for temperature extremes within and between seasons, humidity, wind, and so on.

Identifying the degree to which a region is oriented toward herding is a far more complex issue. In the present article, reliance on herding was defined by the percentage of land mass devoted to grazing. To measure this, colorized land-use maps by country (from *World Book Encyclopedia*, 1993) were scanned into a Macintosh computer. Each land-use map distinguishes which regions are predominantly devoted to grazing, forests, agriculture, fishing, or are nonproductive. Using Adobe Photoshop (Adobe Systems Inc., 1991), we computed the percentage of each country's total land area devoted to grazing. We calculated percentage use of northern and southern regions by separating each country across its center.

Procedure

University faculty members who were acquaintances of the authors were contacted by letter. The cover letter explained that we were study-

ing self-perceptions and stereotypes around the world. No explicit hypotheses were included in the letters. In addition to the letter, 50 questionnaires were included. Faculty were asked to administer the questionnaires to students whom they were currently teaching. Anonymity and confidentiality of respondents were assured.

Results

Three general types of analyses were conducted to address each of the guiding hypotheses. First we focused on establishing the degree to which regional North-South emotional expressiveness stereotype differences exist and the degree to which these stereotypes differ as a function of hemisphere. Second, we examined the degree to which self-reports of expressiveness are related to regional differences. Third, we sought to establish the degree to which North-South differences can be attributed to temperature, economic base (e.g., herding-based economy), or other factors.

North-South Differences for Expressiveness Stereotypes

There are multiple ways by which to test whether there exists a general South-North stereotype for emotional expressiveness. Participants' ratings of perceived expressiveness of Southerners and Northerners in their own country were subjected to a paired *t* test. As predicted, Southerners were rated as more expressive than Northerners, $t(2, 914) = 17.0, p < .001$ (*Ms*: Southerners = 4.83, Northerners = 4.19).

Table 2 presents mean stereotypes by country. Two effects are particularly noteworthy. First, of the 26 countries, 18 (69%) evidenced statistically significant differences in ratings of expressiveness (using paired *t* tests on a within-country basis). Inspection of the means suggests that the magnitudes of ratings of Southerners versus Northerners are, in most cases, quite large—at least 1 unit difference along the 7-point scale. Second, the directions of the stereotypes are mixed. Eleven of the 18 significant differences indicate that Southerners are viewed as more expressive, whereas in 7 countries Northerners are considered to be more expressive. Note that the mere existence of a significant difference indicates that a meaningful stereotype of regional difference is common irrespective of the direction of the difference.

According to Montesquieu, differences between North and South in the northern hemisphere should, in theory, be reversed for people living in countries in the southern hemisphere. To test this hypothesis, we conducted a 2 (hemisphere) \times 2 (regional stereotypes of Southerners vs. Northerners) between-within repeated measures analysis of variance (ANOVA) on stereotype ratings of emotional expressiveness. Although Indonesia and Colombia straddle the equator, we defined Indonesia as a southern hemisphere country and Colombia a northern hemisphere country, because more than 75% of their land mass falls in the respective hemisphere.

As depicted in Figure 1, the Hemisphere \times Regional Stereotype interaction attained significance, $F(1, 2,913) = 94.4, p < .001$. Specifically, stereotypes of emotional expressiveness are quite different among people in the northern hemisphere, with Southerners being viewed as more expressive than Northerners. In the southern hemisphere, however, no differences between Northerners and Southerners emerged.

Valerie Moss-Morris, Cape Town, South Africa; Annabelle Nebel, Ecuador; Giovanna Nigro, Naples, Italy; Metta Nicewarmer, Texas Women's University, United States, in help with Japan; Dario Paez, San Sabastian, Spain; M.N. Palsane, Pune, India; Paola de Paolis, Lausanne, Switzerland; Enrico Pedroso, Sao Francisco, Brazil; Keith Petrie, Auckland, New Zealand; Marie-France Pichevin, Aix-en-Provence, France; Radmilla Preslin, Texas A&M, United States, with help from Serbia and Croatia; Dragen Popadic, Belgrade, Serbia (Yugoslavia); Pio Ricci-Bitti, Bologna, Italy; Rainer Reizenzein, Berlin, Germany; Anna-Maria de Rosa, Rome, Italy; Terada Ryuta, Hokkaido, Japan; Raffaella Saldarelli, Bari, Italy; Loris Schiaratura, Université de Lille, France; Joann Shortt, University of Washington, United States; Roxanne Silver, University of California, Irvine, United States; Linda Simon, University of Kansas, United States; Jorge Vala, Lisbon, Portugal; Robin Vallacher, Florida Atlantic University, United States; Harald Wallbott, Giessen, Germany; Dan Wegner, University of Virginia, United States.

Table 2
Stereotypes of Emotional Expressiveness of Southerners and Northerners by Country

Country	Southerners	Northerners	Difference
Australia	4.34	4.37	-.04
Belgium	4.50	3.63	.87**
Brazil	4.20	4.61	-.41
Canada	4.54	4.48	.06
Chile	4.88	3.99	.89**
Colombia	3.50	5.80	-2.30**
Croatia	5.64	3.94	1.70**
Cuba	4.80	6.18	-1.38**
England	3.98	4.62	-.64*
France	5.36	3.77	1.59**
Germany	4.94	3.72	1.22**
India	4.29	4.37	-.08
Indonesia	2.88	4.56	-1.69**
Italy	6.02	3.73	2.29**
Japan	5.44	2.83	2.61**
Mexico	4.35	5.20	-.85*
New Zealand	4.00	4.00	.00
Portugal	4.06	5.41	-1.36**
Scotland	4.26	4.22	.03
Serbia	5.43	3.88	1.55**
South Africa	4.63	4.33	.33
Spain	5.89	3.97	1.92**
Switzerland	5.29	3.48	1.81**
Tunisia	4.67	4.51	.16
Turkey	4.54	5.57	-1.00*
United States	4.82	4.36	.46**
Grand Mean	4.83	4.18	.65**

Note. Stereotype scores are based on participants' ratings of their views of Southerners and Northerners in their country. Differences are computed South minus North. Within-country paired *t* tests were used to determine if the South-North ratings were statistically different.

* $p < .05$, two tailed. ** $p < .01$, two-tailed.

Self-Ratings of Expressiveness Among Southerners and Northerners

Participants' self-ratings are also related to the region of the country from which they consider themselves coming. Overall, the simple correlation between self-rated expressiveness and participants' self-reported region of origin (where 1 = *from the north part of the country* and 7 = *from the south part of the country*) was significant, $r(2,941) = .054$, $p < .01$. Although this correlation is extremely low, it is consistent when the data are analyzed separately for each country. That is, mean within-country correlations between Southernness and expressiveness (mean $r = .067$, $z(25) = 2.06$, $p < .05$) also are low but statistically significant.

As with the stereotype scores, it is important to know if self-ratings of expressiveness are dependent on living in the northern versus the southern hemisphere. To evaluate this, we correlated participants' southernness ratings with their expressiveness ratings separately by hemisphere and subjected them to a Fisher's *z* test. Overall, the simple correlation was not different for residents of the northern hemisphere ($r = .053$) and of the southern hemisphere ($r = .041$).

Assessing Relative Effects of New World-Old World, Climate, Latitude, and Herding

A careful inspection of Table 2 suggests that the existence of large stereotypes of expressiveness are most pronounced in

European and Asian countries. Relatively weak or nonexistent effects are apparent in North and South America, Australia and New Zealand, and African countries. It should be noted that the majority of individuals who completed the questionnaires in South Africa, Tunisia, and India were either Caucasian or individuals for whom English or French was their native language. Although not predicted, these differences appear to reflect whether respondents are from Old World versus New World countries. *New World countries* are defined as those settled by Europeans after the 16th century and whose language, educational system, religion, and culture continue to strongly reflect European traditions.

The potential importance of Old versus New World stereotypes can be tested in two ways. The first is to calculate a stereotype score by subtracting participants' ratings of Northerners' expressiveness from Southerners' and then computing a simple *t* test using Old versus New World as the independent variable. Not surprisingly, inhabitants of the Old World have more pronounced stereotypes than inhabitants of the New World, $t(2,913) = 16.7$, $p < .001$ (*Ms*: Old World = 1.29, New World = 0.07—where the higher the number, the more Southerners are viewed as expressive). A second way to evaluate the existence of any type of stereotype is to compute the absolute difference of Southerners minus Northerners, thereby ignoring the direction of the stereotype. A *t* test on the absolute differences with Old versus New World as the independent variable also yielded a highly significant effect, $t(2,913) = 10.7$, $p < .001$ (*Ms*: Old World = 1.94; New World = 1.40, where the higher the number, the greater the stereotype). Finally, differences between New and Old World also emerged for self-ratings of expressiveness as a function of the southernness of the region in which people lived. Among Old World residents, degree of southernness was related to self-reported expressiveness, $r(1,333) = .109$, $p < .001$. No such relationship was found among New World participants, $r(1,531) = .004$, *ns*. A Fisher *z* test indicated that these two correlation coefficients were significantly different from each other, $z = 2.04$, $p < .05$, two-tailed.

The final set of analyses attempted to separate the linear effects of temperature, percentage of land devoted to grazing, latitude of the country, and other factors in predicting both stereotypes and self-ratings. We computed two multiple regressions using the expressiveness stereotype score and self-ratings of emotional expressiveness as criterion variables. Using a forced entry regression procedure, we entered the following variables into the analyses of stereotypes: age, sex (2 = female), absolute latitude of the country, New World versus Old World (a binary variable: 2 = Old World), hemisphere (binary: 2 = northern), southernness of the respondent, herding difference score, and temperature difference score. The herding difference score was computed by subtracting the percentage of land mass in the northern half of the specific country from that in the southern half. We obtained temperature differences (expressed in degrees Centigrade) by subtracting the mean yearly temperature in the northern part of the participant's country from that of the southern region. Means of these difference scores for each country can be seen in Table 1. For the self-ratings analyses, age, sex, absolute latitude, Old World, hemisphere, and southernness were again entered. Rather than using differences

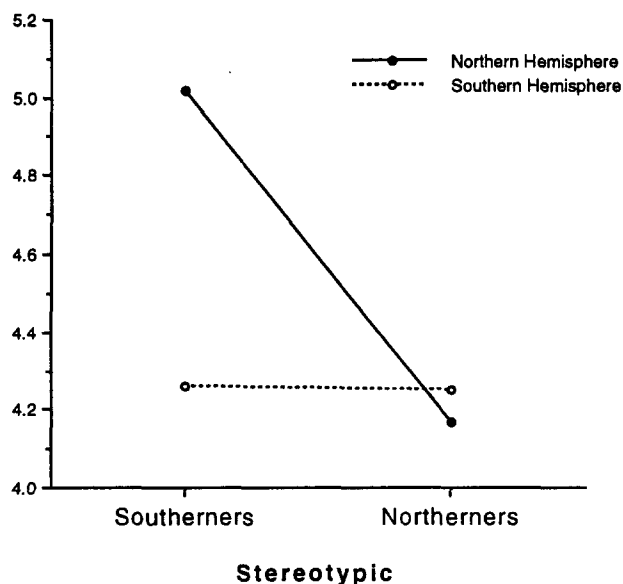


Figure 1. Stereotypes of emotional expressiveness of Southerners and Northerners in the northern and southern hemispheres. The higher the number, the more expressive stereotypic residents are thought to be.

in temperature and grazing for the regressions using self-ratings of expressiveness, we entered actual mean levels of these variables.

The first columns of Tables 3 and 4 present the results of the regression analyses for emotional expressiveness. As depicted in the first column of numbers in Table 3, Southern stereotypes of expressiveness are strongly related to the country's absolute latitude, its being in the Old World, and participants themselves reporting that they are from the southern region of their country. In terms of the central dimension of emotional expressiveness stereotypes, the most robust correlates are living in the Old World, especially at higher latitudes. Neither the Montesquieu temperature nor the herding hypotheses was strongly related to the expressiveness stereotype.

Additional tests of both the Montesquieu and herding hypotheses are shown in the first column of numbers in Table 4, wherein the betas for the self-reports are listed. First, it is interesting that women were more likely to rate themselves as emotionally expressive than men. Second, respondents living in countries closer to the poles (with greater day-night and climatic variability) reported being more expressive than those living closer to the equator. Also interesting is the fact that participants living in the New World reported being more emotionally expressive than those in the Old World. No support was found for the herding hypothesis for any of the self-report items. Indeed, betas associated with herding consistently hovered around 0. Finally, the self-report data revealed limited support for Montesquieu's observations. First, individuals living in southern regions reported being more emotionally expressive than those living in more northern regions of their countries. Consistent with these findings, higher mean temperatures within the various countries were associated with significantly higher self-ratings of expressiveness.

Finally, Tables 3 and 4 also include the results of additional

multiple regressions computed on stereotypes (Table 3) and self ratings (Table 4) of anxiety, energy, and constraint. In all cases, the various predictor variables account for less variance than for the regressions associated with stereotypical and self-rated expressiveness. Furthermore, the general patterns of beta weights are quite similar to those for expressiveness. Two notable exceptions, however, emerged. First, stereotypes of Southerners as anxious (relative to Northerners) were inversely related to the relative warmth of the southern region of the country. This finding is in the direction opposite predicted by Montesquieu. The second, and weaker, finding indicates that relatively greater herding in the southern region of the country is associated with stereotypes of greater energy level.

Discussion

The first purpose of this study was to assess the existence of the North-South stereotype of expressiveness in a large array of cultures. Data collected on nearly 3,000 participants from 26 countries offered very strong evidence showing that this stereotype actually exists. Overall, participants in the majority of countries rated Southerners as more expressive than Northerners. A closer look at these data by country revealed that the North-South stereotype was primarily evident among residents in the northern hemisphere. This suggests that the temperature and climatic variables advocated by Montesquieu do not fully account for the North-South differences in expressiveness in regard to stereotypes. Whereas regression analyses failed to find links between within-country temperature variations and expressiveness stereotypes, the Old World-New World dimension as well as absolute latitude emerged as significant correlates of the participants' North-South stereotypes. In short, the North-South expressiveness stereotype is more robust in the Old World, especially in countries more distant from the equator.

The second general question concerned the degree to which regional differences among ratings of expressiveness were based in truth rather than just being stereotypical. We assessed this question by having participants rate themselves in expressiveness and noting the location of their region of origin on the North-South continuum. Both the overall and the within-country analyses evidenced a low but significant positive correlation between southernness and expressiveness. In general, then, people from southern regions are more expressive than people from northern areas. As with the stereotype data, the self-reported differences in expressiveness between Northerners and Southerners was apparent only in Old World countries.

As regards Montesquieu's temperature explanation of the North-South differences in expressiveness, a multiple regression analysis of the data evidenced temperature as a significant predictor of self-reported expressiveness. Higher temperature of a country was associated with higher ratings of expressiveness. These findings are consistent with laboratory and archival studies indicating that higher temperatures are linked to increased rates of aggression and hostility (cf. Anderson, 1989; Anderson et al., 1995). Interestingly, the present results hint that temperature models may be associated with all forms of emotional expression—not just anger and hostility. Future investigations should tap the degree to which climatic variations may correlate with the expression of positive emotions as well as

Table 3
Stereotype Betas and Multiple Correlations

Variable	Expressiveness	Anxiety	Energy	Constraint
Age	-.04*	.02	-.06*	.04
Sex	.00	.00	-.01	-.03
Absolute latitude	.16*	-.12*	.12*	-.13*
Hemisphere	-.07	.10*	-.07	.02
New World	-.23*	.00	-.12*	.14*
Southernness	.08*	.08*	.16*	-.08*
ΔHerding	-.02	-.02	.05*	.02
ΔTemperature	.05	-.21*	.01	.00
Multiple R	.31*	.21*	.25*	.24*

Note. Stereotype scores are computed South – North. Variables are coded such that high values indicate female (for sex), northern hemisphere residence (for hemisphere), New World residence, and living in the southern region of the country (for southernness).

* $p < .05$, two-tailed.

other negative mood states (e.g., sadness). Note that the results from our sole self-reported emotion—*anxiety*—was unrelated to temperature. Although temperature may be causally linked to the expression of emotions, it may not necessarily be tied to the subjective experience of emotion.

No support was garnered for the herding hypothesis. That is, regions associated with greater land usage devoted to grazing and herding (as opposed to agriculture) were no more or less likely to report being emotionally expressive or anxious. This failure to find effects for herding economies does not negate the original herding conceptions suggested by Nisbett (1993). The central thrust of the herding hypothesis is that herding economies are more likely to demonstrate signs of territoriality and angry aggressiveness. The present study did not directly tap these dimensions.

Before discussing the possible meanings of the current findings, it is important to appreciate the many problems of a study such as this. First, we selected samples from an arbitrary group of countries. In many countries, those who attend college and who take psychology courses may not represent the attitudes and stereotypes of others in the same culture. Second, there are

significant language differences from country to country, and our questionnaires undoubtedly failed to tap subtleties in the language of emotion. That we compared Northerners versus Southerners within each country helps to partially blunt this difficulty. Third, we were unable to receive questionnaires from several parts of the world, most notably Africa and from indigenous people in the New World.

In addition to the above methodological difficulties, one might argue that our relatively large sample size resulted in effects that may have been statistically significant but ultimately minuscule. An alternative way to think about these effects is that we have been able to demonstrate relatively stable, but small, effects in a project fraught with uncontrollable error variance. That broad-based measures such as mean regional temperature, latitude, and even residing in the New versus the Old World can still predict within-country differences in ratings of expressiveness is noteworthy.

Given the robust stereotypes of Northerners and Southerners relative to self-reports, how do the stereotypes develop? As the regression analyses indicate, a kernel of truth exists in that Old World Southerners truly report being more expressive than

Table 4
Self-Report Betas and Multiple Correlations

Variable	Expressiveness	Anxiety	Energy	Constraint
Age	.04*	.03	.06*	.02
Sex	.22*	.10*	.04*	-.09*
Absolute latitude	.10*	.03	.19*	.00
Hemisphere	.06*	.04	.04	.01
New World	.08*	-.11*	.13*	.03
Southernness	.05*	.07*	.02	.02
Herding	.00	-.01	.00	.00
Temperature	.09*	.06	.22*	.03
Multiple R	.24*	.20*	.16*	.11*

Note. Variables are coded such that high values indicate female (for sex), northern hemisphere residence (for hemisphere), New World residence, and living in the southern region of the country (for southernness). *Herding* refers to the percentage of total land devoted to herding and grazing within each country. Temperature is based on the yearly mean temperature of each country averaging the mean yearly northern and southern temperatures.

* $p < .05$, two-tailed.

Northerners. Furthermore, these effects are weakly related to temperature differences—again, in Old World countries. The Old World versus New World effects may explain the possible development of stereotypes. In our Old World cultures (Europe, Japan, Indonesia, etc.), migration patterns over the last 400 years are much lower than in New World countries. It would follow that groups of individuals who have lived together their entire lives would be more likely to adopt in-group or regional biases than people who may have moved from one region to another (cf. Tajfel, 1981). An intriguing corollary to this phenomenon is the degree to which expressiveness stereotypes differ within a country more than between countries. In considering Europe, the Northerners in one country are viewed as far less expressive than Southerners in the country directly north of them. For example, Northern Italians are viewed as low in expressiveness ($M = 3.73$) compared to Southern Italians (6.02) and even Southern Swiss (5.29), who are directly north of them. Again, the Northern Swiss are viewed as less expressive (3.48) than the Southern Germans (4.94) who are directly north of them. A similar pattern is seen in most European countries that border one another on their north and south. Future research would benefit from asking individuals about their perceptions of people in both their own countries as well as those in neighboring countries. To what degree is stereotypical and actual expressiveness a defining characteristic of one's region?

The results raise some intriguing questions about the nature of region, climate, or both, in our understanding of emotions and behavior. Logically, climate must profoundly affect social processes. People living in cold climates devote more time to dressing, to providing warmth, and to planning ahead for food provisions during the winter months. Those living in warmer climates wear fewer clothes and do not need to plan far ahead for warmth or food. The architecture of regions also influences social processes. In warm climates, temperature and seasonal variations are smaller, and needs for heating or protection from the elements are less demanding. In these climates, people are more likely to see, hear, and interact with neighbors year 'round. Emotional expressiveness, then, would be more of a social requirement to maintain a social understanding of others.

Although the current project was not able to address a large number of questions about the nature of emotional expression, it points to the value of using a cross-cultural strategy in trying to understand emotion and regional differences. The findings also suggest that we pay far closer attention to broad-based environmental factors in understanding psychological and social processes.

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(Appendix follows on next page)

Appendix

English Version of the North-South Questionnaire

___ Sex

___ Age

Please fill in the blank to the left of the following questions by indicating a number between 1 and 7, where:

1 2 3 4 5 6 7

not at all moderate a great deal

To what degree do you consider yourself:

___ Emotionally expressive. (revealing of one's feelings)

___ Anxious or nervous. (worrisome, jittery, apprehensive, uneasy)

___ Energetic or enthusiastic. (eager, impassioned, zealous)

___ Reserved or constricted. (controlled, constrained, distant)

To what degree do you consider people in the Northern part of the United States to be (ignore east-west differences):

___ Emotionally expressive.

___ Anxious or nervous.

___ Energetic or enthusiastic.

___ Reserved or constricted.

To what degree do you consider people in the Southern part of the United States to be (ignore east-west differences):

___ Emotionally expressive.

___ Anxious or nervous.

___ Energetic or enthusiastic.

___ Reserved or constricted.

___ From which part of the United States are you (ignore east-west differences)?

1 2 3 4 5 6 7

Northern Middle Southern

Received June 28, 1994

Revision received May 31, 1995

Accepted June 6, 1995 ■