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Naming Patterns Reveal Cultural Values: Patronyms, Matronyms, and the U.S. Culture of Honor

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Abstract

Four studies examined the hypothesis that honor norms would be associated with a pronounced use of patronyms, but not matronyms, for naming children. Study 1 shows that men who endorse honor values expressed a stronger desire to use patronyms (but not matronyms) for future children, an association that was mediated by patriarchal attitudes. Study 2 presents an indirect method for assessing state patronym and matronym levels. As expected, patronym scores were significantly higher in honor states and were associated with a wide range of variables linked previously to honor-related dynamics. Study 3a shows that following the terrorist attacks of 9/11, patronyms increased in honor states, but not in non-honor states. Likewise, priming men with a fictitious terrorist attack (Study 3b) increased the association between honor ideology and patronym preferences. Together, these studies reveal a subtle social signal that reflects the masculine values of an honor culture.

Keywords

culture of honor, patronyms, matronyms, patriarchy, terrorism

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At the most basic level, names identify and distinguish people, places, and things. Besides identification and distinction, however, names can also connote relationships. For instance, rules of etiquette in some cultures dictate that a person's personal name should not be used on first acquaintance, especially for someone of high relative social status, unless that person gives explicit permission. Likewise, the use of a nickname or a "pet" name is something that only close relationship partners are typically allowed to use. Modern surnames in the English-speaking world also identify individuals, while simultaneously indicating kinship. Thus, it could be argued that personal names in the modern era tend to serve individuation and relational functions, whereas surnames tend to serve more collective and kinship functions, such as *Johnson*, "the son of John," and *MacDonald*, "the son of Donald." In the present research, we explore the possibility that *personal* names can *also* serve collective and kinship functions in ways that reveal subtle cultural values associated with important social behaviors. Our focus in this research is on the dynamics of the culture of honor within the United States.

Although decisions about what to name a child are often idiosyncratic and even spontaneous, social factors can play a larger role than many parents probably realize. Indeed, researchers have suggested a variety of potential influences on the naming of children, including socioeconomic status (SES; Levitt & Dubner, 2005), mortality salience (Vicary, 2011), and cultural shifts in individualism and narcissism (Twenge, Abebe, & Campbell, 2010; Varnum & Kitayama, 2011). Indeed, as Lieberson and Lynn (2003) have noted, dramatic changes in the concentrations of male and female names have occurred over the last half century in the United States and other countries (e.g., Canada, Germany, Denmark). Whereas a handful of names accounted for well over 50% of all boy and girl names in many Western countries just a few centuries ago, these high concentration levels have dramatically declined over the past 50 years, and this decline does not appear to be attributable to urbanization or the rise of the internet. Furthermore, the decline is consistent across distinct racial/ethnic groups (e.g., U.S. Blacks and Whites, English Canadians, and French Canadians). Thus, broad social forces seem capable of producing enormous changes in how people name their children. In the next section, we describe the dynamics of one such broad social force, the

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culture of honor, and how it might relate to specific naming tendencies that might manifest honor-related norms.

Culture of Honor, Social Organization, and Aggressive Behavior

Although every culture defines what it means to be "honorable" in terms of what traits and behaviors that culture values, some societies, known as cultures of honor, place special emphasis on the importance of reputation as a primary feature of individual and collective identity (Nisbett, 1993; Peristiany, 1966). Honor in this latter sense means more than just virtue. For men in such cultures, having honor means being (and being known as) strong, brave, and willing to defend one's person, one's family, and one's property from any threat. For women in such cultures, having honor primarily means being loyal and sexually chaste, and failure to exhibit such characteristics brings shame to oneself and one's family—in particular, to the men in one's family (Fischer, 1989; Vandello & Cohen, 2003; Wyatt-Brown, 1986).

Nisbett and Cohen (1996) argued that cultures of honor tend to develop in societies in which widespread economic insecurity is combined with lawlessness (see also Brown & Osterman, 2012; Nisbett, 1993). This combination of factors, Nisbett and Cohen argued, results in people learning to fend for themselves against the risks posed by thieves and marauders, as they are unable to count on a strong state to defend their interests. Having a reputation for pugnacity can serve to deter aggression from others, as it means that other people are less likely to see you as an easy target for attack and exploitation. A related adaption within such communities is the presence of strong kinship bonds, with extended family systems often forming local clans that, among other functions, serve to reinforce an individual's reputation as someone with whom interlopers ought not to trifle. Indeed, as Daly and Wilson (1988) note, patrilineal clanships (or "patriclans") and large, extended families are common features of traditional societies around the world throughout history, in contrast to more stable agricultural or industrial societies (see also Aberle, 1961; Murdock, 1967).

Based largely on the immigration patterns of the "Ulster Scots" (Cohen & Nisbett, 1994; Fischer, 1989; Leyburn, 1962; Nisbett, 1993), or "Scotch-Irish," to parts of the United States during the 17th and 18th centuries, Cohen, Nisbett, and others (e.g., Cohen, Nisbett, Bowdle, & Schwarz, 1996; Nisbett & Cohen, 1996) have identified "honor states" as those categorized by the U.S. Census Bureau within the southern or western regions, with the exception of Hawaii and Alaska (e.g., Cohen, 1996, 1998; Vandello & Cohen, 1999). Research using this simple regional distinction has demonstrated a variety of differences between honor and non-honor states. For example, honor states exhibit significantly higher rates of argument-based homicide among White males, but not among non-White males (Cohen, 1998; Nisbett & Cohen, 1996), as well as higher levels of school violence (Brown, Osterman, & Barnes, 2009). Controlled laboratory studies (Cohen et al., 1996; Cohen, Vandello, Puente, & Rantilla, 1999) show that southern U.S. men respond more strongly to insults than do northern U.S. men at the physiological, psychological, and behavioral levels. More recently, studies have shown that people (especially Whites) living in honor states are more likely to commit suicide (Osterman & Brown, 2011) and to engage in high levels of risk taking, presumably to display their bravery and toughness (Barnes, Brown, & Tamborski, 2012).

Culture of Honor and Names Within Families

Most research on the culture of honor in the United States has concerned aggression and the social norms and institutions through which behavioral scripts for aggression are supported and transmitted (e.g., Cohen, 1996, 1998; Cohen & Nisbett, 1994, 1997). But might the culture of honor also be associated with a non-violent social practice—specifically, how people name their children? This possibility derives from the association between the socioeconomic factors that seem to breed honor cultures (e.g., resource insecurity, lawlessness) and the tendency for such societies to organize around patrilineal clanships and close-knit, extended families. These kinship structures create social networks that provide support in times of distress and attack from external aggressors, such that a member of the clan or family is not just an individual target. In essence, an attack on an individual becomes an attack on the whole social network (which is the very dynamic that historically creates the blood feuds so common among honor cultures; see Daly & Wilson, 1988; McCullough, 2008). In this way, the *family name* becomes part of one's reputational armor, denoting a kinship-based source of strength.

But the use of *personal names* from one generation to the next might also play into such a social system, cementing intergenerational bonds in a fashion similar to that of surnames. Indeed, the intergenerational use of personal names predated the use of surnames, which are a modern invention not used consistently throughout the Western world until the 18th and 19th centuries. Furthermore, the use of personal names could compensate for the fact that surnames are not passed down through daughters to their own children in patrilineal systems, but only through sons to theirs. Thus, a daughter's use of her mother's or father's personal name in the naming of her own children could serve to communicate solidarity with her family of origin despite having taken on a new surname on marriage, a common practice in many cultures. Likewise, a son's use of his own personal name (which he might have inherited from his male forefathers) in the naming of his sons could signal and reinforce the bonds of

identity and kinship across generations. The use of patronyms, relative to matronyms, might have special importance within patriclans, insofar as they connect new generations of males within a family to older patriarchs within the family system, thus identifying newborn sons with powerful male figures (Alford, 1988; Bodenhorn & Vom Bruck, 2006; Fischer, 1989; Rossi, 1965). As we have already noted, naming patterns tend to reflect the influence of cultural values (see Kelly, 1999, for research on the use of violent images in the names of towns and businesses in honor states). We suspect that one such influence might derive from the patriarchal, patrilineal social systems that so often appear to characterize honor cultures, and that certainly characterize the Scotch-Irish roots of this culture in the southern and western United States (Fischer, 1989).

Research on namesaking suggests that the use of patronyms increases attachment bonds and perceptions of genetic relatedness (e.g., Daly & Wilson, 1982; Finch, 2008; McAndrew, King, & Honoroff, 2002). For example, Jankowiak and Woodman (2002) report that mothers with children born out of wedlock are more likely to use patronyms when naming their children, a strategy designed to promote paternity confidence and increased investment by men in their putative offspring (Furstenberg & Talvitie, 1980). In a culture in which a husband's honor depends on his wife's faithfulness, men should be particularly vigilant for signs of infidelity and especially likely to engage in processes that diminish paternity uncertainty (Maner, Miller, Rouby, & Gailliot, 2009). Thus, in honor cultures, the use of patronyms might also function as a subtle assertion of a child's paternity (and thus the putative father's honor) at both a private and a public level.

In the present studies, we extend prior research on the culture of honor by examining the novel hypothesis that people in honor states in the United States would tend to use personal patronyms in the naming of children to a greater extent than would people in non-honor states. In contrast, we did not expect a parallel difference in the use of matronyms, given our reasoning about the connection between the culture of honor and male-oriented social dynamics. Furthermore, to the extent that the enhanced use of personal patronyms in certain regions actually derives from the same social milieu that bred the culture of honor in the first place, we might also see an association between the use of patronyms and other demographic and behavioral variables connected with the culture of honor—a possibility that we examined in the present research.

Study 1: Honor Ideology Endorsement, Namesaking, and Patriarchy

In Study 1, we examined the association between personal endorsement of honor-related beliefs and the desire to use patronyms and matronyms in naming future children within a sample of college students. The direct measurement of honor ideology and naming preferences allowed us to examine a possible mediator of the predicted honor–patronym association, which would be especially difficult to do when working at a regional level of analysis (as we do in subsequent studies). Specifically, we tested the possibility that individual endorsement of patriarchal attitudes might mediate the hypothesized association between honor ideology and preference for patronyms, but not for matronyms.

Method

Participants and procedure. Participants were 527 undergraduates (199 males, 328 females) enrolled at the University of Oklahoma. Ages of participants ranged from 18 to 45 years, with a mean age of 20.2 years. Participants completed all of the measures described below in individually randomized orders.

Measures

Honor ideology. Perhaps the most common feature of honor cultures around the world is a belief in the value of male strength and bravery, along with a derivative acceptance of male aggression in response to honor-related threats to self, family, and property (Nisbett & Cohen, 1996; Peristiany, 1966). Thus, our measure of honor ideology was the 16-item Honor Ideology for Manhood Scale, or HIM (Barnes, Brown, & Osterman, 2012), which assesses the extent to which respondents believe that a "real man" is tough and fearless, and that a man has the right to respond aggressively under a variety of situations (e.g., if another man insults his mother). This measure has been validated in a series of recent studies (e.g., Barnes, Brown, & Tamborski, 2012; Osterman & Brown, 2011), and it exhibited good internal reliability in the present study ($\alpha = .93$).

Patronyms and matronyms. To measure people's preferences for using patronyms and matronyms in the naming of children, we modified a namesaking scale created by Vicary (2011). On this four-item measure, participants were asked to imagine that they had a son in the next 5 years and to report their likelihood of using (a) their own name (b) a variant of their own name, (c) their father's name or a variant of their father's name, and (d) their grandfather's name or a variant of their grandfather's name for this child. Participants were also asked to imagine that they had a daughter in the next 5 years and to report their likelihood of using (a) their own name (b) a variant of their own name, (c) their mother's name or a variant of their mother's name, and (d) their grandmother's name or a variant of their grandmother's name for this child. For all items, participants rated their likelihood of using the designated name source on a scale from 1 (*not at all likely*) to 7 (*very likely*). For both the son and the daughter target, participants were also asked their likelihood of using a currently popular name rather than one

of the previously mentioned naming sources, to help control for response bias in participants' reports.

Patriarchal attitudes. We used an eight-item scale of hegemonic masculinity beliefs (HMB; Connell, 1987; Springer & Mouzon, 2011) to assess the patriarchal attitudes that might serve as a potential mediator of the hypothesized association between honor ideology and patronym use. Sample items are as follows: "When a husband and wife make decisions about buying major things for the home, the husband should have the final say," and "It is much better for everyone if the man earns the main living and the woman takes care of the home and family." The HMB exhibited good internal consistency in the present study ($\alpha = .75$).

In addition, we also included the 10-item Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965; $\alpha = .87$) to control for the possibility that patronym and matronym preferences might reflect respondents' tendencies to exhibit a form of implicit egotism (Pelham, Carvallo, & Jones, 2005)—in other words, perhaps people with positive feelings about themselves endow their own names with special liking, and this increased liking for their own names might then translate into greater preferences for patronyms or matronyms for their future children. Finally, in case socioeconomic status might play a role in namesaking, we included an indirect measure of SES by averaging the highest degree obtained by participants' mothers and fathers ($r = .46$, $p < .001$), as we have found that many college students are uncertain how much money their parents make.

Results and Discussion

We first examined patronym preferences in the naming of sons by male participants. When we regressed patronym ratings on the HIM, controlling simultaneously for self-esteem, SES, and the likelihood of using a non-patronym, we found a significant association between patronym ratings and scores on the HIM, $\beta = .18$, $t(194) = 2.53$, $p = .01$. None of the control variables were significantly associated with patronym ratings in this analysis, $ps > .20$. We performed a similar analysis on patronym ratings by female participants, although for this analysis we used only the two items of the namesaking scale that were not self-referent, for obvious reasons. In contrast to the results among male respondents, this analysis did not demonstrate a significant association between patronym ratings and the HIM, $\beta = .05$, $t(323) < 1.0$, *ns*.

We next examined likelihood ratings for the use of matronyms in the naming of daughters by female participants. When we regressed matronym ratings on the HIM, controlling simultaneously for self-esteem, SES, and the likelihood of using a non-matronym, we did not find a significant association between matronym ratings and the HIM, $\beta = -.04$, $t(323) < 1.0$, *ns*. A similar failure occurred when we analyzed a short form of the matronym scale (excluding self-references) among men, $\beta = .02$, $t(194) < 1.0$, *ns*. Thus, individual endorsement of honor ideology was associated with the reported likelihood of using patronyms among male (but not female) respondents, but no such association occurred for matronyms among either men or women.

We next examined whether the association between honor ideology and patronym scores (the "direct effect") among men might be mediated by patriarchal attitudes (the "indirect effect"), as assessed by the HMB. To test this possibility, we used a bootstrapped mediation model with 1,000 resamples, testing for the indirect effect of honor ideology on patronym preferences through the HMB, controlling for RSE, SES, and the likelihood of using a non-patronym (Hayes, 2013). This model revealed that the indirect path from the HIM to patronym preferences through the HMB (point-estimate = 0.125, $SE = 0.07$) was significant, with a bootstrapped 95% confidence interval (CI) that did not contain 0 (95% CI = [.0046, .2936]). With the mediator included in the model, the direct path from the HIM to patronym preferences was no longer significant ($t = 0.81$, $p = .42$).

In sum, Study 1 offers support for our contention that honor ideology endorsement would predict the extent to which people desire to use patronyms for future sons. This association, though, was only found among men, which could partly be because women might be likely to consider their *partner's* (or future partner's) personal name and family names before choosing a name for their sons. Furthermore, patriarchal attitudes mediated the association between honor ideology and patronym scores among men, consistent with our contention that preference for patronyms is partly a reflection of the hyper-masculine values common to honor cultures. As we predicted, no connection was found among men *or* women between honor ideology and matronym ratings.

Although these results support our predictions, the patronym and matronym preferences that we analyzed in this study are purely hypothetical. Thus, we cannot know whether people who endorse the beliefs and values of the honor syndrome would *actually* use patronyms or matronyms in naming their real children from these data alone. It would be ideal to examine birth records for all 50 states in the United States across multiple generations to determine the extent to which children are given the personal names of their parents in honor states and non-honor states. However, access to comprehensive birth records in the United States is difficult to come by, even using commercial businesses that specialize in helping people locate ancestors. Even when birth records *can* be accessed, birth certificates in many states do not include the father's name, which makes computing patronyms impossible. Unable to achieve this ideal, we took a hypothetical approach to name preferences in Study 1. In Study 2, we assessed the predicted association between honor culture and naming patterns in the real world *indirectly*, using a novel proxy for multi-generational patronyms and matronyms across states.

Study 2: Measuring the Prevalence of Multi-Generational Patronyms and Matronyms

In the absence of the birth-record data that we would need to compare the actual use of patronyms and matronyms across all U.S. states, we created an indirect metric for assessing the cross-generational use of personal names. The inferential nature of this approach, described below, means that this method must be interpreted with caution, but we attempted to rule out a variety of potential confounds and to examine the convergent validity of this novel index vis-à-vis a set of demographic and behavioral variables that have been associated in previous research with the dynamics of U.S. honor culture.

Method

Data. In Study 2, we attempted to score each state for its use of patronyms and matronyms using a method that, though indirect, allowed us to examine real naming patterns across three generations for all 50 U.S. states. Specifically, we used the U.S. Social Security Administration's names database (www.ssa.gov/OACT/babynames/state/index.html) to identify the 10 most popular boy names and the 10 most popular girl names for babies born in 1960, 1984, and 2008. Our reasoning was that if babies born in 1960 began having their own children approximately 24 years later, then the most popular names in 1960 ought to show up again as popular names in 1984 "to the extent that parents were using patronyms or matronyms." The same reasoning, of course, applied to the babies born another 24 years later (in 2008) to that second generation.[1]

Each state was given a single point for every instance in which a name that appeared on *that state's* top-10 list in 1960 also appeared on its top-10 list in 1984, and likewise for names on the state's top-10 list in 1984 that appeared on its top-10 list in 2008. However, if a name that appeared on the top-10 list in 1960 also appeared on *both* the 1984 and 2008 top-10 lists, then 3 points were awarded (1 for the first repeat appearance in 1984, and 2 for the second repeat appearance in 2008). In this way, we "rewarded" three-generational more than two-generational patronyms and matronyms.[2] Importantly, top-10 lists were generated independently for each state and for each generation and scored according to the above method, so that regional differences in specific name preferences were not confounded with state patronym or matronym scores. We examined these scores first as a function of each state's honor status, and second with respect to a set of demographic and behavioral variables linked to regional differences in honor ideology in previous research (described shortly). State honor status was coded according to the dichotomous categorization scheme often used in honor research in the United States. This approach, as we noted in the Introduction section, uses Census Bureau regions to designate honor states as those in the South or West, with the exception of Alaska and Hawaii, which, together with states in the North, are categorized as non-honor states. Although this categorization scheme lacks nuance, researchers using this scheme over the last two decades have been able to find a host of theoretically based differences between honor and non-honor states (e.g., Barnes, Brown, & Tamborski, 2012; Brown et al., 2009; Cohen, 1996, 1998; Nisbett & Cohen, 1996; Osterman & Brown, 2011).

In addition to patronym and matronym scores for each state, we also collected a variety of control variables that prior studies have shown tend to differ between honor and non-honor states, or that might conceivably be confounded with the other honor-related predictors we used in this study. Specifically, we obtained the average yearly temperature of each state (National Oceanic and Atmospheric Administration, 2000), the percentage of the state population living in a rural area (U.S. Census Bureau, 2000), the Gini index of income inequality (computed for the years 1989, 1999, and as a rolling average across 2005-2007; U.S. Census Bureau, 2007, 2008a), poverty levels (U.S. Census Bureau, 2006), unemployment levels (U.S. Bureau of Labor Statistics, 2005), and median income (U.S. Census Bureau, 2008b). The latter three variables were each obtained for 1994 and 2004 and averaged across years to improve reliability ($\alpha > .80$ at each time point, and $\alpha = .90$ for all indices together; Osterman & Brown, 2011). We then standardized all three (after reverse scoring poverty and unemployment) and combined these three variables into a single wealth variable. As a final state-level demographic variable, we obtained the percentage of the population in each state that self-identified as White, non-Hispanic, for the years 1994 and 2004 (according to the U.S. Census Bureau) and averaged these percentages to create a more stable index of each state's racial/ethnic composition. As Lieberson and Lynn (2003) have noted, regions with greater racial and ethnic diversity are likely to exhibit more variety among the names given to children, which could have an impact on our state patronym and matronym scores.

In addition to these demographic controls, we also used scores derived by Vandello and Cohen (1999) to estimate state levels of cultural collectivism. Vandello and Cohen (1999) noted that although the United States is considered by cross-cultural researchers to be a prototype of individualism (e.g., Triandis, 1994), there is also heterogeneity within the country, with some parts of the country exhibiting higher levels of collectivism than others. The measure that Vandello and Cohen devised to document these regional differences was a unit-weighted composite of eight factors, such as the percentage of households with grandchildren in them, and the percentage of people with no religious affiliation (reverse scored). These factors were chosen in part to reflect the wide diversity of ways that a collectivistic orientation might be manifested within society, and the composite collectivism

Table 1. Descriptive Statistics and Correlations Among Variables in Study 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CH status[a]	—														
2. Temperature	.47														
3. Rurality	.01	−.21													
4. Gini index	.33	.59	−.16												
5. Wealth	−.41	−.44	−.23	−.70											
6. % White	−.30	−.69	51	−.45	.12										
7. Collectivism	.20	.73	−.27	.37	−.09	−.73									
8. Religiosity	.40	.57	.18	.43	−.56	−.21	.36								
9. Patronym scores	.50	.57	−.18	.66	−.41	−.51	.54	.34							
10. Matronym scores	−.05	.07	.14	.26	−.13	−.11	.18	−.08	.37						
11. Executions[b]	.72	.65	.04	.52	−.44	−.33	.37	.55	.67	.12					
12. Army recruits	.53	.38	.28	.14	−.44	−.15	.07	.23	.30	.11	.56				
13. % Scotch-Irish	.34	−.03	.57	−.07	−.23	.26	−.15	−.03	.23	.26	.26	.57			
14. White suicides	.61	.07	.29	−.16	.26	−.05	−.11	.16	.04	−.23	.38	.64	.40		
15. Non-White suicides	.00	−.43	.21	−.41	−.06	.11	−.37	−.05	−.34	−.26	−.31	.06	.03	.50	—
M	—	52.24	0.28	0.44	0.00	0.77	50.08	0.00	8.42	0.36	3.23	1.62	2.01	13.24	8.31
SD	—	8.15	0.15	0.02	0.82	0.14	11.34	0.98	4.54	0.56	2.10	0.48	0.75	3.16	5.56

Note. CH = culture of honor. All |rs| >.27 are significant at the .05 level.
[a]CH status is coded 0 = non-honor, and 1 = culture of honor.
[b]Execution rates were square-root transformed in all analyses to reduce positive skew.

index formed by these factors was associated with a host of other variables theoretically associated with the antecedents and consequences of individualism/collectivism, such as poverty, urbanicity, and the percentage of minorities in the state population.

Although Vandello and Cohen's collectivism index included an item reflecting religious affiliation, we decided to examine religiosity in more detail and without the potentially diluting influences of the other collectivism items. This seemed important to do, insofar as the apparent use of patronyms and matronyms might simply reflect the tendency of people in some states to use biblical names across generations. To examine the association between religiosity and patronym/matronym scores, we included a composite religiosity measure composed of two items (r = .93): the percentage of adults who say that religion is very important to their daily lives (Newport, 2009), and the percentage of children who attend religious services at least weekly (U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, 2005).

Finally, we also collected a set of demographic and behavioral variables that previous research has associated with the U.S. culture of honor to investigate their potential associations with naming practices. We obtained these variables through primary and secondary sources. Specifically, the number of executions conducted in each state between 1930 and 2009, adjusted for state population levels and square-root transformed to reduce positive skew, was obtained from the U.S. Bureau of Justice (Snell, 2010). Army enlistment rates in 2008 for each state (per number of youth aged 15-24) were obtained from a secondary source (www.nationalpriorities.org) via a Freedom of Information Act request to the Department of Defense. The percentage of the populace in each state identifying as Scotch-Irish was obtained from the U.S. Census Bureau's (2007) American Community Survey, a demographic characteristic linked to the historical origins of regional differences in honor-related norms in the United States (e.g., Fischer, 1989; Nisbett, 1993). Finally, suicide rates among Whites and non-Whites were taken from the U.S. Centers for Disease Control and Prevention for the years 1999-2008. All of these variables have been linked in previous research to honor-related dynamics (e.g., Cohen, 1996; Nisbett, 1993; Nisbett & Cohen, 1996; Osterman & Brown, 2011), and the breadth of this set of variables, ranging from the demographic to the behavioral, allowed us to test the convergent validity of our indirect patronym/matronym scoring index.

Results

The unit of analysis for our hypothesis tests was the state, and we included all state-level covariates described above in a series of multiple regression models examining patronym scores and matronym scores separately. Table 1 displays descriptive statistics for and correlations among all variables used in our analyses.

As predicted, when we regressed state patronym scores on the dichotomous culture of honor status variable (coded 0 = non-honor states, and 1 = honor states) and all state covariates, we found that honor states (M = 10.01) had significantly higher patronym scores on average than did non-honor states

Table 2. Regression Analyses (Study 2) of Patronym Scores as a Function of State Honor Status and a Composite Honor Index.

	CH status[a]		Honor index[b]	
	β	*t*	β	*t*
Temperature	−.18	−0.94	−.35	−2.02*
Rurality	.05	0.37	−.18	−1.43
Gini index	.65	4.08**	.77	5.34**
% White	−.01	−0.03	.03	0.21
Wealth	.19	1.18	.28	1.95
Collectivism	.42	2.54*	.49	3.35**
Religiosity	−.05	−0.39	.05	0.44
Honor variable[c]	.38	3.35**	.56	5.03**
	R^2 = .64		R^2 = .72	

Note. CH = culture of honor.
[a]CH status is coded 0 = non-honor states and 1 = honor states.
[b]Honor index is the composite of army recruitment rates, state execution rates, % Scotch-Irish, and White suicide rates (all standardized and unit-weighted).
[c]Honor variable is either dichotomous state honor status or the continuous honor index.
*$p \leq .05$. **$p \leq .01$.

(M = 6.56). Both the Gini index and state collectivism levels were significant covariates in this analysis, as shown in Table 2. Thus, state honor status accounted for unique variance in patronym scores. Because of the partial redundancy of the collectivism and religiosity indices, we also ran a separate regression model in which we kept religiosity but dropped collectivism as a covariate. In this analysis, religiosity was still not a significant predictor of patronym scores, β = –.01, $t(42) < 1$, *ns*, but culture of honor status and the Gini index remained significant (*p*s < .02). In contrast to these analyses, culture of honor status was not a significant predictor of matronym scores, either with collectivism and religiosity in the model, β = –.05, $t < 1$, or with only religiosity in the model, β = –.09, $t < 1$. Only the Gini index, both βs > .50, *t*s > 2.30, *p*s < .03, and rurality, βs > .40, *t*s > 2.30, *p*s < .03, were significant predictors of matronym scores.

Might these naming patterns be confounded with the extent to which parents in each region are less creative in their naming choices, or with the extent to which they are disposed toward using currently popular names for their children? If parents in honor states tend to exhibit less creativity in their children's names, or if they tend to use popular names to a greater extent than do parents in non-honor states (both of which would translate into a *higher degree of name concentrations* for top-10 names in honor states), then this tendency might inflate, or even *create*, the differences in patronym and matronym scores as we have calculated them here.

To examine this potential confound, we examined the concentration levels of the top-10 male and female names in 2008 as a function of culture of honor status. Specifically, we computed the mean percentage of all boys and girls in honor states versus non-honor states who were given each of the 10 most popular names that year. This analysis revealed a difference in name concentrations. However, the top-10 male names in honor states (M = 9.39) were significantly *less* concentrated than they were in non-honor states (M = 10.23), $F(1, 48) = 5.07$, $p = .029$, $MSE = 1.75$, $d = 0.65$, a pattern that if anything works against our hypothesis. The same was true of the top-10 female names (*M*s = 7.58 and 8.94, for honor and non-honor states, respectively), $F(1, 48) = 13.36$, $p < .001$, $MSE = 1.74$, $d = 1.06$. Thus, the top-10 male and female names in honor states accounted for a *lower* percentage of the total number of names given to babies in 2008 (see Varnum & Kitayama, 2011, for a similar analysis of name concentration levels). Consequently, this potential confound cannot account for the higher patronym scores that we obtained with our cross-generational analysis.[3]

Thus far, we have demonstrated a basic difference between the patronym scores (but not the matronym scores) of honor and non-honor states, controlling for a host of state-level demographic characteristics, as well as name concentrations. Our final analysis in Study 2 investigated whether patronym scores might also be associated with a set of demographic and behavioral variables that previous studies have shown to be related to the U.S. culture of honor: specifically, state execution rates (Nisbett & Cohen, 1996), army enlistment rates, the percentage of the population claiming a Scotch-Irish heritage, and White suicide rates (Osterman & Brown, 2011). For simplicity, and because extremely similar results were obtained when we analyzed each of these predictors separately, we standardized and combined all of these variables into an "honor index" (α = .78).

As shown in the right column of Table 2, statewide patronym scores were, indeed, predicted by the honor index, controlling for all of the statewide covariates used in our previous analyses. Although three of these variables were aggregated across race and ethnicity, it is noteworthy that the one variable for which race-specific values were available (suicides) revealed a significant association with patronym scores among Whites (β = 0.30, $t = 2.28$, $p < .03$), but the association between patronym scores and suicide rates among *non-Whites* was near zero (β = 0.02, $t = 0.11$, *ns*), a pattern that is consistent with many previous studies of regional differences in honor-related behaviors (e.g., Barnes, Brown, & Tamborski, 2012; Nisbett & Cohen, 1996). When we repeated these analyses using statewide matronym scores, the honor index was not a significant predictor ($p > .55$), nor was non-White suicide ($p > .19$).

Under the assumption that enhanced patronym scores among honor states might be linked with regional differences in the factors comprising the composite honor index through the cultural ideology of honor, we examined whether this honor index might statistically mediate the association between patronym scores and state honor status.[4] A bootstrapped mediation analysis with 1,000 resamples, including all statewide covariates as controls, revealed that the indirect

path from state honor status to patronym scores *through the honor index* (point-estimate = 2.88, *SE* = 1.20) was significant, with a bootstrapped 95% CI that did not contain 0 (95% CI = [0.98, 6.14]). Importantly, the direct path from state honor status to patronym scores was no longer significant ($t = 0.45$, $p = .65$) with the honor index included. Reversing the roles of patronym scores and the honor index in a final mediation analysis showed that the indirect path from state honor status to the honor index through *patronym scores* (point-estimate = 0.25, *SE* = 0.11) was also significant (95% CI = [0.096, 0.582]), although in this model the direct path from state honor status to the honor index remained significant ($t = 4.39$, $p < .01$). Together, these analyses are consistent with the idea that living in certain U.S. states promotes the endorsement of honor norms, leading to a wide array of outcomes, including the use of patronyms.

Discussion

Consistent with the results of Study 1, Study 2 established indirect support for the hypothesis that honor states would exhibit greater usage of personal patronyms, but not matronyms, than would non-honor states. Both state collectivism scores and the Gini index were also independently associated with patronym scores. Given prior work on cultures of honor around the world (Peristiany, 1966), including the Scottish lowlands that many theorists argue is the primary source of regional differences in honor norms in the United States (Fischer, 1989; Leyburn, 1962; Nisbett, 1993), both collectivism and the Gini index make sense as predictors of patronym scores, as both might well be byproducts of the same economic and sociocultural factors that tend to foster honor cultures (e.g., economic insecurity, the absence of a reliable rule of law; Nisbett, 1993). Nonetheless, statewide honor status remained a statistically significant predictor of personal patronym scores even with these covariates in the model, and this association was *not* confounded with a higher level of name concentrations among honor states.

Furthermore, Study 2 showed that patronym scores were uniquely predicted by state differences in an "honor index" comprising execution rates, army recruitment levels, the percentage of the populace claiming a Scotch-Irish heritage, and White (but not non-White) suicide rates. This honor index significantly mediated the association between state honor status and patronym scores (and its relation with state honor status was likewise partially mediated by patronym scores). This pattern of mediation supports the view that the honor ideology that tends to prevail in honor states (and is reflected in the variables comprising our honor index) constitutes a social force that influences a broad variety of behaviors, including the enhanced use of patronyms (which in turn might also help reinforce this ideology). This analysis is consistent with our main assumption that a high level of patronym usage represents a subtle vestige of the social milieu from which regional differences in the culture of honor in the United States originally sprang and is consequently associated with regional differences in the demographic and behavioral variables that have been linked previously to honor norms.

An alternative interpretation of these scores is that they reflect a higher level of "traditionalism" in honor states, or perhaps just a lack of imagination in the naming of children, resulting in the same names being used across successive generations. The latter interpretation seems unlikely, given that *lower* levels of name concentrations were found in honor states for the top-10 boy and girl names. Thus, parents in honor states actually use a *wider* variety of boy and girl names overall than do parents in non-honor states. The "traditionalism" interpretation, however, must be specified to consider its value as a true alternative to our thesis. If "traditionalism" means "social conservatism," then this view is not well supported in Study 2, at least insofar as religiosity did not account for significant variance in patronym scores. However, if "traditionalism" means "concern with family heritage," then this view is actually consistent with our argument that honor ideology fosters heightened concerns with male family lineages and kinship-based identities.

Study 3a: Collective Honor Threats and Namesaking—A Naturalistic Experiment

We have proposed that the use of patronyms derives in part from the endorsement of honor ideology in some states and the value that honor cultures place on masculinity and male kinship. So far, however, our tests have all been purely correlational. A more direct test of this proposition would be to observe whether honor ideology is more strongly associated with the use of patronyms following an honor-related threat. Studies 3a and 3b provide such tests, one naturalistically and the other experimentally.

Barnes, Brown, and Osterman (2012) have recently argued that terrorist attacks can represent a threat to national honor and collective identity for people who embrace an honor ideology. Barnes and colleagues provided support for this contention by showing that honor ideology was associated with enhanced defensiveness and militarism in response to a *national* terrorist threat (both hypothetical and actual), consistent with prior research on *personal* honor threats. For instance, after imagining that the Statue of Liberty had been blown up by Islamic extremists, respondents who endorsed honor-related beliefs and values reported desiring that the United States respond to the attack with particularly strong levels of aggression, including the use of chemical and nuclear weapons. Such reactions are consistent with the literature on honor-based aggression following *personal* insults, but they also underscore the possibility that honor dynamics can extend to the collective in important ways, including the perception of collective threats as honor violations, which require aggressive responses similar to those required for personal honor violations.

Data

We examined the effects of a terrorist attack on namesaking by computing statewide patronym and matronym scores in honor states and non-honor states during the 2 years before and after the terrorist attacks of 9/11/2001. Because of the limitations of these archival data, we could only compute state patronym scores across two generations, but otherwise our approach was consistent with the three-generational scoring system used in Study 2. Because collectivism and the Gini index were significant covariates in Study 2, we included them in our analyses here as well.

Results and Discussion

In an analysis of state patronym scores, and controlling for collectivism and the Gini index, we found a main effect of state honor status, $F(1, 46) = 6.32$, $p < .02$, and an interaction between honor status and time, $F(1, 46) = 4.26$, $p < .05$. There was no change in patronym scores among non-honor states from before ($M = 3.09$) to after ($M = 3.06$) the attacks of 9/11, $t < 1$, *ns*. However, there *was* a significant increase in patronym scores among honor-states from before ($M = 3.56$) to after ($M = 4.01$) the attacks, $t(46) = 3.05$, $p < .01$. No such interaction was found for matronym scores ($F < 1$), which actually *decreased* from before to after the attacks in both honor ($M = 0.64$ to 0.32) and non-honor states ($M = 0.64$ to 0.46), $F(1, 46) = 7.09$, $p = .01$ (for the main effect of time). These results are remarkably consistent with the results of Studies 1 and 2, showing that patronym (but not matronym) scores increased among honor states from before to after a terrorist attack, which we believe represents a national honor threat.

Study 3b: Collective Honor Threats and Namesaking—A Laboratory Experiment

Study 3b followed up on the naturalistic experiment afforded by the real terrorist attacks of 9/11 with a laboratory experiment in which the *thought* of a terrorist attack was primed. Specifically, we examine whether people primed with the notion of a terrorist attack exhibit a stronger association between their honor beliefs and their patronym preferences (using the namesaking scale presented in Study 1). Consistent with Studies 1, 2, and 3a, we expected no such pattern to occur for matronyms.

Method

Participants were 137 undergraduates (55 males, 82 females) enrolled at the University of Oklahoma. Prior to the lab session, participants completed the nine-item Honor Concerns (HC) scale (IJzerman, van Dijk, & Gallucci, 2007), which captures participants' adherence to honor norms ($\alpha = .86$).

Table 3. Summary of Regression Analyses of Namesaking Preferences in Study 3b.

	Male participants				Female participants			
	Patronyms		Matronyms		Patronyms		Matronyms	
	β	*t*	β	*t*	β	*t*	β	*t*
Popular name	−.19	−1.40	−.09	−0.66	.09	0.79	.24	0.24
Prime	−.04	−0.32	.26	1.99*	.08	0.71	−.03	−0.03
HC	.10	0.75	.11	0.85	.06	0.52	.12	0.12
Prime × HC	.28	2.02*	.23	1.71	−.09	−0.82	.16	0.16

Note. HC is the Honor Concerns scale score (mean-centered). Popular name is using a currently popular name for son or daughter; Prime is coded as terrorism prime = 1 and control prime = − 1. Males' matronym scores and females' patronym scores contained only the non-self-referent items from the namesaking scale.
*$p \leq .05$.

The HC samples from a slightly broader range of honor-related beliefs and values than does the HIM, focusing less on the masculine dimension of honor, and is more self-descriptive than abstractly ideological (e.g., "My honor depends on the appreciation and respect that others have for me"). In the lab session, participants completed all measures on computers in individual cubicles. They first completed either a control prime or a terrorism prime, adapted from Barnes, Brown, and Osterman (2012). Participants read a hypothetical *New York Times* article, which discussed Afghan terrorists' attack on the Statue of Liberty, killing 250 tourists. Participants were instructed to imagine their emotional reactions and thoughts if such an attack actually happened. After 90 s, the computer prompted them to write their reactions for 3 min. Participants in the control condition were asked to imagine and write about their diet from the day before. Afterward, all participants completed a filler task in which they rated a series of neutral faces, followed by the namesaking scale used in Study 1 and a thorough debriefing.

Results and Discussion

Patronym and matronym ratings were regressed (separately for males and females, given the results of Study 1) on the writing prime, HC (mean-centered), and their interaction, controlling for non-namesaking scores, as in Study 1. Table 3 displays all regression coefficients for main effects and interactions for both patronym and matronym preferences among male and female participants. As can be seen in this table, the predicted Prime × HC interaction for patronyms was significant among men, but not among women. A simple slopes analysis revealed a positive association between the HC and patronyms for men following the terrorism prime, $\beta = .38$, $t(50) = 2.28$, $p < .03$, but a non-significant association following the control prime, $\beta = -.18$, $t(50) = -0.80$, $p = .43$ (see Figure 1). No Prime × HC interaction was observed with matronyms among either male or female participants.

Study 3b demonstrates that the priming of a terrorist attack, which we believe represents a collective honor threat

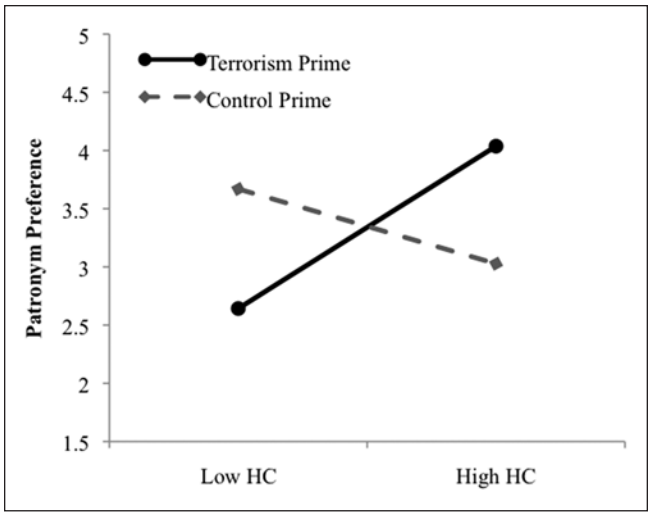

Figure 1. Interaction between the prime condition and honor concerns (HC) on patronym preference among male participants in Study 3b.

for honor endorsers, enhances the desire to use patronyms, but not matronyms, for those who embrace the ideology of honor. Complementing our findings in Study 1, we only found this interaction between the terrorism prime and honor ideology among men, even though we used a different measure of honor ideology endorsement in this study than we did in Study 1. Going beyond the correlational evidence of Study 2 and the quasi-experimental evidence of Study 3a, Study 3b shows that an experimental manipulation of a collective honor threat is capable of increasing the association between patronym preferences and honor ideology, at least among men.

General Discussion

In the studies we report here, the use of personal patronyms, but not matronyms, was significantly higher in honor states than in non-honor states. This was true whether we examined this usage directly, using preferences for patronyms in the naming of future children as a function of individuals' honor ideology endorsement, or indirectly, using the propensity for particular names to remain popular over successive generations across all 50 states in the United States. Furthermore, the use of patronyms, but not matronyms, was associated by a composite index of demographic and behavioral variables linked in previous studies with honor-related dynamics (e.g., state execution rates, army recruitment levels). This composite "honor index" significantly mediated (and was mediated by) the association between patronym use and state honor status, consistent with the notion that living in an honor state promotes an honor-oriented ideology, which leads to a variety of outcomes, including patronym use. An archival study using the indirect patronym/matronym scoring method described in Study 2 showed that following the terrorist attacks of 9/11, honor states increased their use of patronyms (but not matronyms), whereas non-honor states did not. Similarly, the desire to use patronyms for future sons was significantly associated with the endorsement of honor values after participants were primed with a fictitious terrorist attack, at least among males. Consistent with the results of Studies 1 and 2, this interaction was not found with the desire to use matronyms for future daughters.

These studies represent the first empirical association between enhanced patronym usage and the culture of honor, although they are certainly not the first to show that naming patterns can reflect differences in social norms and values (e.g., Twenge et al., 2010; Varnum & Kitayama, 2011). We think this finding is important for two reasons. First, this is one of the first demonstrations that social processes linked to honor culture go beyond the realm of aggression, hostility, or shame, which have been the focus of most prior studies in this domain. As studies on honor culture move beyond the important influence of honor-related beliefs and values on interpersonal aggression to investigate other types of behaviors—such as risk taking, mental health, and family dynamics—we begin to see honor as a pervasive social force worthy of being viewed at the level of other cross-cultural variables that have received much more attention, such as individualism/collectivism. We should note, however, that even the apparently benign practice of baby naming might very well be associated with aggression, insofar as the tendency to promote the family name across generations might be a manifestation of the strong kinship bonds and ingroup dynamics that undergird the tendency of certain groups to engage in multigenerational blood feuds (Daly & Wilson, 1988; McCullough, 2008).

Second, the present studies are valuable because they demonstrate one of the ways that culture might be passed down and maintained across generations (Varnum & Kitayama, 2011). Culture, after all, does not simply "happen." For a particular culture's ways of thinking, behaving, and feeling to continue, its schemas, scripts, and ideologies must be handed down from one generation to the next. Previous research on the culture of honor has examined some of the social and institutional mechanisms for the intergenerational transmission of honor-related mores (e.g., Cohen, 1996, 1998; Cohen & Nisbett, 1997), and the present research points to yet another potential mechanism of transmission, albeit a subtle one. By using patronyms, but not matronyms, in the names of their children, families communicate the special importance of the male lineage within the family network, connecting a new generation to prior ones.

That parents in honor states in the United States do so with respect to sons but not with respect to daughters also communicates cultural values. Specifically, the preference for naming boys after their male forebears underscores the special value placed on boys and suggests that male babies are considered to be more important than female babies in honor cultures, or at least in the honor culture found in the

United States. Moreover, if we assume that fathers and mothers are equally responsible for naming their children, this naming pattern might reflect consensual gender preferences among men and women in honor states. This analysis is consistent with theorizing about the collaborative nature of sexism (e.g., Glick & Fiske, 2001), and with evidence indicating that parents jointly discriminate against their daughters (but not their sons) for having various shortcomings (e.g., Crandall, 1995). We do not suggest that all of these dynamics occur at a conscious level, of course. Indeed, many elements of a culture's beliefs and values are probably learned implicitly and transmitted subtly (Greenwald & Banaji, 1995). No matter how subtle the medium, though, the values *are* ultimately communicated, and in this case the message itself is arguably more important than the medium.

As supportive of our hypotheses as these results seem to be, these studies are only preliminary and have some important limitations. For instance, although some type of geographical unit of analysis is the rule in studies of culture's causes and consequences, the dichotomous regional distinction we used to compare honor states with non-honor states in Study 2 seems rather lacking in nuance. Research in this domain might benefit from new approaches to regional differences that recognize the heterogeneity among both honor states and non-honor states, perhaps even using subtle social signals related to patronyms as one of many indicators of honor culture beliefs and values. Likewise, although reliable measures of honor status at the national level have yet to be developed, once they are, international replications of the present studies might also be possible, although such investigations will be complicated by the idiosyncrasies of linguistic rules associated with patronyms, matronyms, and surnames. Even with these idiosyncrasies, however, we would expect that nations characterized as cultures of honor would exhibit stronger tendencies to use patronyms in their children's names, thus connecting new generations to prior ones and reminding their members of the interdependencies between personal honor and the family name.

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Notes

1. Although the mean age of first-time parents has increased slightly over the last several decades (Landry & Forrest, 1995), using an average birthing cycle of 24 years seems reasonable. When we computed a sample of state patronym scores among honor and non-honor states that extended the *second* phase of the birthing cycle by 2 years, this small change resulted in state scores that were nearly identical to those computed in the present, uniform system.
2. When we recomputed all patronym and matronym scores *without* adding an extra point for the use of a name across all three generations, the results of all analyses remained virtually unchanged for both patronyms and matronyms.
3. As an alternative index, we computed the number of names that it took to account for 50% of all boys and (separately) 50% of all girls who were born in 2008 in each state. These alternative indices were virtually unrelated to state honor status, with or without the other state covariates in the models, and were correlated with our original concentration indices at $r \geq .70$. Including these alternative indices in our analyses did not change any of our conclusions.
4. We acknowledge an anonymous reviewer for suggesting this analysis.

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