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Domains matter: A prospective investigation of traditional feminine gender roles and alcohol use among Latinas

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ABSTRACT

Scholars suggest traditional feminine gender roles (TFGRs) influence alcohol use among U.S. Latinas, but relevant literature is limited. This two-wave study examined how multi-dimensional internal (i.e., beliefs) *and* external (i.e., practices) TFGR processes related to drinking among college-bound Latina emerging adults across time. TFGRs characterized by virtue predicted less alcohol engagement, while some TFGR dimensions (e.g., subordinate) predicted more. TFGR practices more strongly predicted cross-sectional alcohol outcomes than TFGR beliefs, although some TFGR beliefs predicted later drinking. These findings highlight the utility of assessing multiple TFGR dimensions *and* domains to better understand the link between TFGRs and drinking among Latinas.

KEYWORDS

Latina;
Hispanic;
gender roles;
marianismo;
alcohol

Introduction

A growing body of literature suggests that Latina young adults are drinking more alcohol, narrowing a historic gender gap in alcohol behaviors (NIAAA, 2021). Some research indicates that aspects of orienting toward mainstream U.S. culture may be linked to increased alcohol use among Latinas (Lui & Zamboanga, 2018), which could account for this narrowing of the drinking gender gap. Researchers note that traditional feminine gender roles (TFGRs) in Latin American culture discourage girls and women from substance use, and suggest that a shift toward mainstream U.S. culture may lead to endorsement of more permissive norms (e.g., Schwartz et al., 2014). However, TFGRs are multi-dimensional

(Castillo et al., 2010) and certain TFGR elements may be related to less alcohol use while others may be related to more use (Perrotte et al., 2021).

Previous research on TFGRs and alcohol use is hampered by design and measurement limitations. A narrative review on the traditional gender role hypothesis in alcohol use noted that most studies are cross-sectional and thus unable to provide insight on whether a change in cultural orientation precedes or follows a change in alcohol use (Perrotte & Zamboanga, 2021). This is vital information for prediction and for developing interventions. Most studies have also relied on scales asking about beliefs rather than behavioral manifestations of those beliefs. Beliefs are not always acted on (e.g., McEachan et al., 2011). In contrast, behavior-based scales focus on behavioral manifestations of beliefs, which are more proximal to behaviors related to those beliefs. As such, enacting (or failing to enact) belief-based behaviors in one domain (e.g., gender role beliefs) may be a better indicator of the likelihood of enacting other behaviors (e.g., alcohol use) predicted by that belief. When working to understand risky health behaviors such as alcohol use and misuse, it is important to form a more robust comprehension that takes into account both internal and external processes (i.e., beliefs *and* behaviors). The current study addresses these aforementioned limitations by (a) employing a two-wave design and (b) developing and using new behavioral measures (i.e., assessing TFGR practices) alongside the existing standard (belief-based) TFGR measures.

TFGRs among Latinas

TFGRs among Latinas are commonly referred to as *marianismo* (Castillo et al., 2010). Early characterizations depicted the construct as the feminine counterpoise to traditional *machismo* (Stevens, 1973), a hypermasculine dimension of a set of gender role prescriptions that has been ascribed to traditional Latin American culture (Arciniega et al., 2008). Contemporary conceptualizations describe traditional Latin American gender roles as multi-faceted and complex for both men and women, imbued with cultural values such as *familismo* (e.g., feeling strong sense of interdependence and obligation to family), *respeto* (e.g., being obedient and accepting of one's position in social hierarchies), and *simpatía* (e.g., promoting harmonious relationships; Castillo & Cano, 2007; Castillo et al., 2010).

Few measures are designed to capture the multi-dimensional nature of TFGRs among Latinas (Miville et al., 2017). The Marianismo Beliefs Scale (MBS; Castillo et al., 2010; additional validation by Piña-Watson et al., 2014) captures five dimensions of TFGRs, each with distinct sets of expectations. The first, *family pillar*, sets forth the expectation that Latinas should serve as a backbone of strength and a source of unity for the

family (i.e., a pillar of the family). The second, *spiritual pillar*, similarly suggests that Latinas are responsible for the spiritual well-being of family members and close others. The third, *virtuous and chaste*, indicates that Latinas should maintain their purity, which is characterized in part as upholding religious values. The fourth and fifth dimensions are comprised of beliefs that Latinas should be *subordinate to others*, particularly men, and *self-silencing*, refraining from talking about ‘taboo’ topics (e.g., birth control).

Some dimensions of the MBS have been linked to positive outcomes (e.g., family pillar and spiritual pillar with academic outcomes; Piña-Watson et al., 2016). However, other dimensions are related to poor mental health (e.g., family pillar, subordinate to others, and self-silencing with depression and anxiety; Nuñez et al., 2016). Research linking MBS to other health behaviors such as alcohol use is more scarce, although relevant literature has been growing in recent years.

The link between TFGRs and alcohol use among Latinas

The traditional gender role hypothesis in alcohol use posits that some Latina women may be socialized from a young age to believe that engaging in heavy alcohol use is incongruent with TFGR ideals. We explore this hypothesis using a holistic framework as some TFGRs may be either adaptive or maladaptive in certain contexts. Using this framework will allow for movement toward a strengths-based approach and away from deficit-oriented approaches that indicate gender role socialization among Latinas is inherently negative (see Piña-Watson et al., 2016).

The limited research on TFGRs and alcohol use among Latinas has produced mixed findings (Perrotte & Zamboanga, 2021). For instance, some studies find greater endorsement of aspects of TFGRs characterized by submissiveness are related to drinking more (e.g., Kulis et al., 2010), while others find no relationship (e.g., Perrotte et al., 2018). These differing findings may be due in part to limitations of the TFGR measures used, which are often unidimensional (e.g., Venegas et al., 2012) or assess gender role prescriptions that do not account for culturally specific aspects of Latin American culture (e.g., Vaughan et al., 2014; Venegas et al., 2012).

Recent studies have operationalized TFGRs using the MBS and examined the potential links of TFGRs to alcohol use and misuse among Latinas. One of these studies collapsed the five dimensions of the MBS into two (i.e., ‘positive’ and ‘negative’ marianismo, following previous research, Piña-Watson et al., 2016) and found no direct link between either combination of TFGR dimensions to drinking (Perrotte et al., 2018). Findings from other studies underscore the importance of examining each of the

five MBS dimensions separately. For instance, in a preliminary correlation analysis of a study on acculturative stress and alcohol use among Latina immigrants, a zero-order relation emerged linking family pillar to drinking greater quantities of alcohol, and another linked a composite of subordinate to others and self-silencing to drinking smaller quantities (Ertl et al., 2018). Similarly, Perrotte et al. (2021) assessed the dimensions independently and found that endorsing virtuous and chaste beliefs was linked to drinking smaller quantities of alcohol and having fewer experiences of drunkenness.

Modern theoretical conceptualizations of acculturation suggest that acculturation-related processes occur along distinct domains (e.g., cognitive, behavioral; see Schwartz et al., 2010). As noted earlier, most research in this field has focused on beliefs. Though typically correlated with behaviors, the TFGR beliefs one endorses may differ from the behaviors they enact. As such, their relations to other outcomes may also differ. For example, a theoretical perspective from social psychology suggests that the 'ought' self (i.e., the beliefs a person has about how they *should* be) can differ from who that person actually is (Higgins, 1987). Knowing how a person *enacts* each TFGR dimension could be extremely useful for predicting other actions such as engaging in alcohol use and misuse.

Current study

The aim of this study was to advance the literature on TFGRs and alcohol use among Latinas in three ways. First, we recruited a sample of Latina incoming college students who had no prior college experience and thus had not been in contact with the university environment. Young adults transitioning from high school to college face numerous rapid social and developmental changes that may correspond with increased alcohol use (Merrill & Carey, 2016; Stone et al., 2012). There is an extensive literature that suggests college settings involve several powerful risk factors for higher levels of alcohol use and misuse. For instance, college corresponds with an increased exposure to contexts (e.g., drinking games, parties) and social pressures (e.g., perceptions of elevated peer drinking norms) that encourage hazardous drinking (see Krieger et al., 2018; Merrill & Carey, 2016). For some college bound Latinas, the college transition may include having systems of traditional beliefs and behaviors challenged by those of the mainstream college culture, including those pertaining to risky behaviors (Raffaelli & Ontai, 2004) such as alcohol use. As such, understanding predictors of drinking behavior at this point in development is of great importance. Second, data were collected across two waves to examine how the traditional sociocultural beliefs and behaviors Latinas endorse shortly before

beginning college are prospectively related to later engagement with drinking behaviors. Specifically, we examined how TFGR endorsements among Latinas just weeks prior to entering their first year of college relate to alcohol use during the second semester of their freshmen year. Third, we used an existing measure of TFGR beliefs as well as a measure of TFGR practices developed for this study so that we could assess both belief *and* behavioral domains of TFGRs in relation to drinking among Latinas. As the literature on TFGRs and alcohol use is scant, we cautiously advanced limited hypotheses based on theoretical conceptualizations of TFGRs from the literature. For example, as the virtuous and chaste dimension of TFGRs prescribes that women engage in behaviors that are 'pure' (Castillo et al., 2010) and has been linked to drinking less in past research (Perrotte et al., 2021), we expected this dimension will be inversely related to alcohol use in the current sample. What to expect for other dimensions of TFGRs is less clear. Researchers have noted that subordinate and self-silencing dimensions of TFGRs may be characterized by restraint that may relate to limiting what may be perceived as a socially unacceptable behavior (Perrotte et al., 2018), and some past research indicates these dimensions may relate to less drinking (Ertl et al., 2018). Therefore, we hypothesized that the subordinate and self-silencing TFGR dimensions would also relate to less alcohol use. Finally, in light of research that suggests sociocultural behaviors may be more robust predictors of alcohol use than sociocultural cognitions (Lui & Zamboanga, 2018), we expected that TFGR practices would be more strongly related to the alcohol variables in our study than TFGR beliefs.

Method

Participants and procedure

These data were collected as part of an effort to examine how gender roles relate to alcohol misuse among Latina/o/x young adults in south Texas over their first year of college. All procedures were approved by the Institutional Review Board (IRB) within the University of Texas at San Antonio (IRB protocol #17-092). The research team obtained email addresses for all incoming first-time freshmen who had registered for orientation and identified as Hispanic/Latina/o/x. These students were invited to participate in a two-wave study on college student drinking. Recruitment occurred the late July and early August before the start of their first fall semester, before any first-year students moved into dorms. Two cohorts participated across two consecutive years (2017 and 2018). Those invited to the study answered a prescreen to ensure they were (a) Hispanic/Latina/o/x; (b) between the ages of 18 and 25; (c) unmarried;

(d) had at least one grandparent born in a country besides the U.S. (i.e., were a 4th generation or more recent immigrant); and (e) a first-time college student (i.e., neither a transfer from another university nor otherwise previously engaged with the university environment). A total of 562 students met inclusion criteria, gave informed consent, and completed baseline (T1) surveys; however, only Latinas were included in the current analyses (T1 $n=344$; Mean age = 18.06, $SD = .03$). Participants who completed T1 surveys were invited to participate in a second survey (T2) in the early spring of the same school year (i.e., late February/early March of 2018 and 2019). Participants were compensated with Amazon gift cards for participation, although this compensation varied slightly across cohorts due to greater availability of research funds for recruitment of the second cohort. The first cohort was offered a 1 in 3 opportunity to win an Amazon gift card at T1 (\$25) and T2 (\$35), and the second cohort was offered guaranteed Amazon gift cards at T1 (\$5) and T2 (\$10) in addition to a 1 in 3 opportunity to win an Amazon gift card at T1 (\$20) and T2 (\$25). In addition to increased incentives for the second wave, several texts and emails in between waves (e.g., wishing students good luck on exams and a safe winter break) and reminders ahead of T2 data collection. A separate study focused on the men in this sample is guided by aims unrelated to this paper and published elsewhere (Perrotte et al., 2020).

Measures

TFGR beliefs (T1)

The MBS (Castillo et al., 2010) was used to measure TFGR beliefs along five dimensions: 1) family pillar (5 items, e.g., ‘A Latina must be a source of strength for her family’); 2) spiritual pillar (3 items, e.g., ‘A Latina is responsible for the spiritual growth of her family’); 3) virtuous and chaste (5 items, e.g., ‘A Latina should be faithful to her partner’); 4) self-silencing (6 items, e.g., ‘A Latina should not express her needs to her partner’); and 5) subordinate (5 items, e.g., ‘A Latina should avoid saying no to people’). Participants endorsed agreement to each belief along a 7-point scale (1 = strongly disagree, 7 = strongly agree). The averages of items were then calculated for each subscale. Internal consistency ranged from $\alpha = .81$ to $\alpha = .86$ across dimensions at T1, indicating good reliability.

TFGR practices (T1)

The first three authors used the MBS as a close guide to generate items that map onto each of the five MBS dimensions described above to develop a companion measure to the MBS for this study that captures TFGR practices instead of beliefs. As such, the items were designed to mirror

the five dimensions of TFGR practices: 1) family pillar practices (5 items, 'I do things to keep my family happy'); 2) spiritual pillar practices (5 items, e.g., 'I encourage other people to attend religious services'), 3) virtuous and chaste practices (6 items, reverse-coded, e.g., 'I make choices that others would consider promiscuous'); 4) self-silencing practices (3 items, reverse-coded, e.g., 'When I want/need something, I let others know about it'); and 5) subordinate practices (5 items, e.g., 'I do things for the men in my family before taking care of my own needs'). Items were rated on a 7-point scale (1 = strongly disagree) and within-dimension averages were calculated. Internal consistency for subscales ranged from $\alpha = .70$ to $.92$ at T1. The analysis supporting the 5-factor structure of the TFGR practices measure is described in the data analytic approach and results.

Alcohol variables (T1 and T2)

Three alcohol variables were measured: estimated frequency, estimated typical quantity, and binge drinking occasions. Past-30 day estimated frequency and estimated typical quantity were measured using a modified version of the Revised Daily Drinking Questionnaire (DDQ-R; Kruse et al., 2005), in which participants first used an open-ended response (from 0 to 4) to indicate on how many of each given day they drank alcohol over the last 30 days (e.g., how many Mondays, Tuesdays, etc.) followed by number of drinks on a 'typical' drinking day separately for each day of the week they drank alcohol. Summing the number of days yielded a total estimated frequency, and each unit represents an additional day in the last month in which alcohol was consumed. Multiplying the frequency (i.e., 0 to 4) by the estimated quantity for each of the drinking days yielded estimated quantity for each day. Those values are summed together such that each unit represents a standard drink that was consumed.

Binge drinking occasions were assessed separately using an adaptation of the DDQ-R (Kruse et al., 2005). Rather than being asked how many of each day they consumed alcohol on in the last month, in this adaptation participants were asked how often they drank four or more standardized drinks on one drinking occasion (NIAAA, 2020) for each day of the week. Responses were summed for a total estimate of binge drinking occasions, thus each unit represents a separate binge drinking occasion.

Additional covariates

We adjusted for living arrangements (T2 only; 0 = living with childhood family, 1 = not living with childhood family), cohort (2017 cohort = 1, 2018 cohort = 2). A single item from the Acculturation Rating Scale for Mexican Americans II (Cuéllar et al., 1995) was used to measure immigration generational status along a 5-point scale (1 = 1st generation, 2 = 2nd

generation, etc.). For the data analysis, individuals who did not meet inclusion criteria but who had passed the online prescreen were excluded. These were six 5th generation immigrants (i.e., neither themselves, their parents, nor their grandparents were born in the U.S.) and one participant younger than 18 were excluded.

Data analytic plan

All analyses were conducted using SPSS version 24 and Mplus version 8.5. Careless responses were identified as participants who acknowledged that they did not pay attention to the survey and did not think their data should be included in the analysis and/or participants who failed to respond appropriately to an attention check item embedded within the survey (i.e., 'select strongly disagree') at both T1 and T2. A total of 7 respondents were deleted prior to analyses for careless responding.

Exploratory Structural Equation Modeling (ESEM; see Marsh et al., 2014) was used to assess the factor structure of the TFGR practices measure, using full information maximum likelihood (ML) estimation. ESEM was chosen over other factor analytic strategies (e.g., exploratory factor analysis) because a priori assumptions were made regarding the underlying factor structure of the TFGR practices measure and how items would map onto the five dimensions of the MBS (Castillo et al., 2010). Items were specified to load onto 1-, 2-, 3-, 4-, and 5- factor solutions across five consecutive models. Model identification was guided using a combination of relative and comparative fit indices and magnitude of factor loadings onto the respective dimensions of TFGR practices (i.e., $\beta \geq .40$ deemed sufficient loading) (Marsh et al., 2014; Weston et al., 2008). Zero-order correlations were then estimated across TFGR domains and dimensions to assess potential multicollinearity and assess the convergent validity of the TFGR practices measure.

Last, two separate path models were specified to assess the relations between TFGRs and the alcohol variables, using robust ML estimation. A negative binomial strategy was selected given the nature of the alcohol data (i.e., count, skewed with presence of outliers, preponderance of zeros, Gardner et al., 1995; Tüzen et al., 2020). For the first model (i.e., the T1 cross-sectional model), each alcohol variable was regressed onto TFGR beliefs, TFGR practices, generational status, and covariates. For the second model (i.e., the two-wave model), each alcohol variable at T2 was regressed onto the corresponding T1 alcohol variable, all ten dimensions of TFGRs at T1, generational status, and covariates as assessed at T2. Significant coefficient parameters were exponentiated to yield an incidence rate ratio (IRR) to assess how changes across units of TFGRs predicted rates of

alcohol use and binge drinking. Auxiliary variables were included in the two-wave analysis that were related to missingness and were also related to each alcohol variable, using an inclusive strategy recommended by researchers (Collins et al., 2001) to reduce bias in parameter estimates when data are missing not at random.

Results

The final analytic samples were $N=330$ (T1) and $N=152$ (T2). Attrition analyses indicated that missingness was unrelated to estimated frequency and estimated typical quantity, but it was significantly related to binge drinking, $t(323.85) = -2.35$, $p = .020$, such that participants with data at both T1 and T2 reporting significantly fewer binge drinking occasions at T1 ($M = .52$, $SD=1.57$) than participants who failed to return for T2 ($M=1.01$, $SD=2.18$). Characteristics of the final analytic sample are on [Table 1](#). At baseline, participants were primarily either 2nd or 4th generation immigrants, of Mexican origin, and lived with their childhood family.

Before descriptive and correlation analyses, ESEM was conducted with the TFGR practices items (i.e., behaviors). Model fit indices indicated a 1- through 4- factor model did not adequately fit the data (i.e., significant χ^2 , CFI < .90, RMSEA > .08, SRMR > .10; Weston et al., 2008); however a 5-factor model yielded the following fit: $\chi^2(185) = 523.41$, $p < .001$; CFI = .93; RMSEA = .08 (95% CI: .07 .08), SRMR = .03. The covariance matrix for the 6-factor solution was non-positive definite, thus the 5-factor solution was retained for exploration. An examination of factor loadings indicated that a single item intended to map onto self-silencing practices did not load onto any TFGR factor and was removed from the scale. Further, modification indices suggested correlating the residuals of several indicators within-scale. After making these adjustments, the final factor solution fit the data well, with the exception of a significant chi-square: $\chi^2(150) = 198.44$, $p = .005$; CFI = .99; RMSEA = .03 (95% CI: .02 .04), SRMR = .02 ([Table 2](#)).

Means, standard deviations, and zero-order correlations of TFGR subscales across domains are on [Table 3](#). All TFGR belief subscales were strongly positively correlated with each other. Supporting convergent validity, all TFGR practices were positively correlated with the corresponding beliefs subscale. Unlike the belief subscales, for the practices subscales, neither family pillar nor spiritual pillar correlated with self-silencing. Similarly, neither the virtuous and chaste subscale nor the self-silencing subscale correlated with subordinate practices. Consistent with the notion that beliefs and practices are meaningfully different in the current context, correlations of the practice-based scales with their belief-based counterparts, though statistically significant, were moderate ($r = .19$ to $.44$).

Table 1. Sample demographics.

	Wave 1 (N=330)	Wave 2 (N=152)
<i>Immigration generation</i>	n(%)	n(%)
1st	35(10.6)	–
2nd	152(45.9)	–
3rd	51(15.4)	–
4th	81(24.5)	–
<i>Country of origin</i>		–
Mexico	179(54.1)	–
Other Latin American country	32(9.7)	–
Two or more Latin American countries	13(3.9)	–
Other country (non-Latin American)	14(4.2)	–
<i>Parental education</i>		–
≤ High school diploma	144(43.4)	–
2 or 4 year college degree	124(37.5)	–
Graduate degree	51(15.4)	–
<i>Living arrangements</i>		
Alone	6(1.8)	6(3.9)
With childhood family	249(75.2)	54(35.5)
With other relatives	26(7.9)	3(2.0)
With friends (unrelated)	8(2.4)	12(7.9)
With a romantic partner	5(1.5)	6(3.9)
Group quarters (e.g., dorm)	25(7.6)	71(46.7)
<i>Relationship status</i>		
Single with no attachments	165(49.8)	74(48.7)
Casually dating one or more people	29(8.8)	13(8.6)
Exclusively dating a single person	125(37.8)	65(42.8)
<i>Alcohol use</i>	M(SD)	M(SD)
Estimated frequency	1.48(2.5)	1.50(2.5)
Estimated typical quantity	4.38(9.6)	4.89(10.3)
Binge drinking frequency	.80(2.0)	.46(1.3)
Alcohol-related problems	.29(1.0)	.94(2.2)

Note. Discrepancies in group totals reflect missing data for variable.

Path analytic findings

See Tables 4 and 5 for coefficients and *p*-values for the cross-sectional and two-wave path analyses, respectively. Significant pathways ($p < .05$) between TFGR dimensions and alcohol outcomes are described below in text with the corresponding incidence rate ratio for ease of interpretation.

In the cross-sectional path analysis (i.e., T1 TFGR dimensions predicting T1 alcohol variables), none of the belief-based TFGR dimensions were related to any alcohol variable though some practice-based dimensions were. A one-unit increase in virtuous and chaste practices was associated with a 39% reduction in estimated frequency ($IRR = .61$), a 48% reduction in estimated typical quantity ($IRR = .52$), and a 36% reduction in binge drinking occasions ($IRR = .64$). A one-unit increase in subordinate practices was associated with a 22% increase in estimated frequency ($IRR = 1.22$).

In the two-wave path analysis (i.e., T1 TFGR dimensions predicting T2 alcohol variables while adjusting for corresponding T1 alcohol variable), several pathways from TFGR beliefs to alcohol use were significant. A one-unit increase in spiritual pillar beliefs was associated with a 36% increase in estimated frequency at T2 ($IRR = 1.36$) and a 59% increase in

Table 2. Standardized factor loadings, TFGR practices measure.

	F1	F2	F3	F4	F5
<i>Family pillar practices</i>					
I do things to keep my family happy.	.85				
I make choices that strengthen my family.	.86				
I allow my family to depend on me for their needs.	.71				
I do things that show others that I am loyal to my family.	.84				
I do things to serve as a source of strength for my family.	.85				
<i>Spiritual pillar practices</i>					
I model good religious/spiritual practices for those around me.		.86			
I teach my family about spirituality/religion.		.92			
I encourage other people to attend religious services.		.94			
I practice the values taught by my religion.		.78			
I serve as a spiritual leader for my friends.		.84			
<i>Virtuous and Chaste practices</i>					
I make choices that others would consider promiscuous.			.69		
I flirt with guys that I know are in a relationship with someone else.			.57		
I dress provocatively/sexy on purpose.			.73		
I purposefully wear clothes that I know will 'show off' my body.			.62		
I do not act in a 'virtuous' manner.			.43		
I do not act in ways that are pure.			.56		
<i>Self silencing practices</i>					
When I want/need something, I let others know about it.				.55	
If I don't agree with something a man says, I will make my position known to them.				.54	
I tell my partner when I need something from them.				.81	
<i>Subordinate practices</i>					
If a man in my family asks me to do something, I will do it.					.72
I do things for the men in my family before taking care of my own needs.					.76
If a man makes a decision, I agree with it without arguing.					.75
If a man in my family asks me to do something I don't want to do, I do it anyway.					.76
If a woman in my family asks me to do something I don't want to do, I do it anyway.					.40

Note. All factor loadings significant at $p < .001$.

estimated typical quantity ($IRR = 1.59$), while a one-unit increase in family pillar beliefs predicted a 327% increase in T2 binge drinking occasions ($IRR = 3.27$). Conversely, a one-unit increase in virtuous and chaste beliefs corresponded with a 29% reduction in estimated frequency ($IRR = .71$) and a 68% reduction in binge drinking occasions ($IRR = .32$). Findings pertaining to virtuous and chaste practices were consistent with cross-sectional analyses, with a one-unit increase predicting a 31% reduction in estimated frequency at T2 ($IRR = .69$), a 40% reduction in estimated typical quantity ($IRR = .60$), and a 31% reduction in binge drinking

Table 3. Descriptive statistics for bi-domain TFGR dimensions.

	1	2	3	4	5	6	7	8	9	10
<i>Beliefs</i>										
1 Family pillar	4.74(1.4)	—								
2 Spiritual pillar	3.14(1.6)	.68***								
3 Virtuous and Chaste	3.60(1.5)	.62***	—							
4 Silencing self	1.94(.96)	.44***	.62***	—						
5 Subordinate to others	1.78(1.0)	.36***	.55***	.79***	—					
<i>Practices</i>										
6 Family pillar	2.92(1.6)	.38***	.58***	.36***	.30***	—				
7 Spiritual pillar	4.72(1.6)	.46***	.33***	.25***	.19**	.45***	—			
8 Virtuous and Chaste	5.93(.9)	.13*	.19***	.16**	.11*	.21***	.25***	—		
9 Self-silencing	3.40(1.3)	.06	.12*	.19**	.18**	.06	-.03	.22***	—	
10 Subordinate	2.51(1.1)	.34***	.36***	.39***	.44***	.23***	.30***	.02	.09	—

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 4. Cross-sectional negative binomial regression analysis.

	Estimated frequency (T1)			Estimated typical quantity (T1)			Binge drinking occasions (T1)			
	B	SE	p	B	SE	p	B	SE	p	
<i>Beliefs (T1)</i>										
Family pillar	-.09	.12	.466	-.04	.16	.813	.10	.16	.542	
Spiritual pillar	.14	.10	.156	-.02	.15	.873	-.12	.17	.497	
Virtuous and Chaste	-.03	.12	.830	-.02	.16	.904	-.10	.18	.585	
Self silencing	-.01	.16	.969	.09	.20	.667	.26	.26	.317	
Subordinate	-.06	.14	.692	-.00	.18	.994	-.10	.22	.637	
<i>Practices (T1)</i>										
Family pillar	-.06	.08	.485	-.02	.11	.864	.16	.11	.134	
Spiritual pillar	.01	.09	.957	.07	.11	.526	-.04	.12	.759	
Virtuous and Chaste	-.50	.11	<.001	-.66	.14	<.001	-.44	.16	.004	
Self silencing	.11	.08	.180	.08	.10	.428	-.05	.12	.701	
Subordinate	.20	.09	.037	.22	.12	.065	.11	.13	.406	
<i>Covariates</i>										
Cohort	.36	.20	.072	.39	.25	.118	.08	.29	.774	
Immigration generation	.25	.09	.006	.49	.12	<.001	.61	.14	<.001	

Note. $N = 318$. Significant effects highlighted in bold. All predictor variables measured at T1.

Table 5. Two-wave negative binomial regression analysis.

	Estimated frequency (T2)			Estimated typical quantity (T2)			Binge drinking occasions (T2)		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
<i>Beliefs (T1)</i>									
Family Pillar	.12	.14	.381	.18	.16	.271	1.19	.35	.001
Spiritual Pillar	.31	.11	.005	.47	.15	.002	.36	.22	.104
Virtuous and Chaste	-.35	.16	.024	-.42	.23	.067	-1.14	.29	<.001
Self Silencing	-.11	.23	.646	-.40	.31	.196	-.52	.38	.181
Subordinate	-.13	.20	.517	-.12	.24	.606	-.07	.34	.836
<i>Practices (T1)</i>									
Family Pillar	.11	.11	.308	.14	.13	.277	.84	.18	<.001
Spiritual Pillar	.01	.10	.896	.03	.11	.783	-.43	.19	.025
Virtuous and Chaste	-.38	.15	.012	-.52	.19	.007	-.92	.28	.001
Self Silencing	.00	.09	.991	.01	.13	.953	.04	.14	.754
Subordinate	.11	.15	.443	.02	.18	.933	.42	.27	.126
<i>Covariates</i>									
Alcohol Variable (T1)	.17	.05	.001	.07	.02	.004	.11	.07	.098
Cohort	.61	.25	.015	.94	.34	.005	-.47	.45	.301
Living Arrangement (T2)	.64	.25	.011	.97	.35	.006	2.64	.63	<.001
Immigration Generation	.04	.13	.786	.02	.16	.898	.28	.18	.117

Notes. *N* = 151. Significant effects highlighted in bold. All predictor variables measured at T1. All paths to T2 alcohol variables controlled for identical variable at T1. Paths to T2 binge drinking frequency controlled for T2 estimated frequency.

occasions (*IRR* = .69). Consistent with its belief-based counterpart, an increase of one-unit in family pillar practices was related to a 232% increase in binge drinking occasions (*IRR* = 2.32). Spiritual pillar practices, however, were linked to a 35% reduction in T2 binge drinking occasions (*IRR* = .65) per one-unit increase.

Discussion

To our knowledge, this is the first study to assesses both TFGR beliefs *and* behaviors (a bi-domain approach) to explore TFGRs and alcohol use among Latinas. The combination of multi-dimensional, culturally-specific measures, a two-wave design, and a bi-domain approach allowed us to assess which dimensions were predictive versus merely correlational, and provided initial information on when a belief-versus practice-based measure might be more informative. Null zero-order correlations that emerged among some of the dimensions of TFGR practices suggested that it is more feasible for a person to endorse seemingly discrepant beliefs than to engage in similarly discrepant practices. For instance, to actively serve as a backbone of strength for both family and close others – as would be expected given the items comprising family pillar and spiritual pillar practices – would likely require an individual to assume a communicative leadership role. Filling that role is incompatible with concurrent engagement in self-silencing. The contrasting inter-factor relations across beliefs and practices domains of TFGRs noted in this study further underscore

the importance of accounting for the potential layers of internalization of TFGRs among Latinas.

TFGR dimensions and alcohol use: Domain matters

Of the TFGR dimensions measured in this study, ‘virtuous and chaste’ emerged as the most robust predictor, consistent with some recent research (Perrotte et al., 2021). Some studies suggest that drinking alcohol, particularly excessively, may be viewed as incongruent with ideals of femininity associated with purity (Hutton et al., 2016). Women who endorsed the virtuous and chaste TFGR dimensions may consider drinking alcohol to be impure, and, in turn, refrain or limit alcohol use. In the current study, practice-based virtuous and chaste scores were associated with reduced frequency, quantity, and fewer binge drinking occasions across both path analyses. Belief-based coefficients were consistent with this pattern, but only significant for the two-wave analysis. This suggests that, in terms of virtuous and chaste, a behavior-based TFGRs measure may be better for detecting *current* drinking behaviors.

Many of the two-wave findings pertaining to the family pillar and spiritual pillar TFGR dimensions were unexpected as these dimensions have been characterized as ‘positive’ (e.g., Piña-Watson et al., 2016). Intuitively and empirically (Piña-Watson et al., 2014), the constructs map onto aspects of family connection and religiosity, respectively. These are known to protect against adverse mental health outcomes (see Silva & Van Orden, 2018) and risky drinking behavior (e.g., Martyn et al., 2009). However, in the present study, family pillar beliefs and practices that were endorsed the summer before beginning college were related to engaging in much more binge drinking the following spring. Though this is an under-researched topic, one past study did detect a positive zero-order correlation between family pillar and alcohol use (Ertl et al., 2018). It is possible that the psychological weight of fulfilling the responsibilities prescribed by the pillar dimensions (Castillo et al., 2010; Gil & Vazquez, 1996) may at times override the protective benefits of familial and spiritual connection. In support of this, research has linked TFGR pillar dimensions to negative cognitions such as depression, anxiety (Nuñez et al., 2016), and acculturative stress (Ertl et al., 2018). Relatedly, Latina college students who endorse the TFGR pillar dimensions may not have the opportunity to enact their family pillar values while at school to the same degree they could before their college year started, which may create distress. We did not measure distress in this study, but it is feasible that distress might be an underlying mechanism linking family pillar TFGRs to later alcohol use across both belief- and practice-based domains.

Similarly, endorsing higher levels of spiritual pillar beliefs was associated with more frequent drinking and larger alcohol quantities consumed the following spring. However, spiritual pillar practices predicted fewer binge drinking occasions later. This separation across beliefs and practices is very important to consider as binge drinking is a high risk drinking behavior connected to numerous adverse consequences among college students (Krieger et al., 2018). Spiritual pillar beliefs may be linked to increased engagement with alcohol generally through distress-oriented mechanisms described in the previous paragraph. However, these findings suggest that for some Latina first year college students, participating in spiritual pillar practices before college begins can have lasting protective effects in terms of risky drinking across the first college year. Religious engagement has been recently linked to less alcohol abuse among Mexican American adults (Moreno et al., 2020). The extent that the protective effect of spiritual pillar practices in relation to later binge drinking maps onto general religious engagement as opposed to engagement that is unique for Latina women ascribing to a dimension of TFGRs should be examined in future research.

The modest effect linking subordinate practices and drinking frequency within the cross-sectional path analysis is consistent with recent work suggesting that the subordinate dimension of the MBS may be related to alcohol consumption (Perrotte et al., 2021), although subordinate-related effects in the previous study were marginal. Similar to the domain-related conclusion drawn for virtuous and chaste above, the current findings suggest that examining subordinate practices rather than beliefs might be a more effective way of understanding how the TFGR dimension relates to drinking in a cross-sectional context. It is possible that the significant effect for subordinate practices can be explained using the distress framework previously noted as subordinate beliefs have been linked to poor mental health (e.g., Nuñez et al., 2016). Alternatively, it is also plausible that higher endorsements of subordinate and subordinate-like constructs may tap into a general drive to conform. Specifically, some people drink because they are motivated to conform (see Cooper, 1994); college students are at risk for succumbing to pressure to engage in alcohol use by their peers (Borsari & Carey, 2001), and adolescents feel rewarded when they conform to the drinking norms of their peer group (Balsa et al., 2011).

Limitations and looking ahead

Several limitations should be considered when interpreting our findings. First, a fairly large proportion (54%) of the baseline sample did not take part in T2. Other studies with college students over similarly long periods

have also experienced marked attrition (Cheng & Mallinckrodt, 2015; Respondek et al., 2020). Preliminary analyses indicated that missingness was unrelated to general alcohol use but it was related to binge drinking. Established techniques were used to account for potential bias due to missingness (i.e., full information ML estimation, Enders, 2001; inclusive auxiliary variable strategy, Collins et al., 2001). Still, caution must be exercised when interpreting these results in light of the missing data. Second, a two-wave design limits the temporal inferences that can be drawn. For instance, findings pertaining to family pillar practices may potentially be explained by the changes experienced by Latinas across their first year of college. To better understand the mechanisms that link TFGRs to later alcohol use, future studies should include three or more waves of data collection to support statistical techniques that better model change over time. We also note here that the measure of TFGR practices used in these analyses was developed for this study and has yet to be validated in an independent sample. Although the ESEM results and the suggestion of convergent validity from the correlational analyses are promising, our conclusions are tempered by the novelty of the TFGR practices measure until further validation studies can be conducted.

In addition, it is important to consider that Latinas in the U.S. are a vastly heterogeneous population both in terms of heritage country and expressions of gender identity (Streed et al., 2017). Research demonstrates that patterns of drinking behaviors (e.g., Caetano et al., 2009) are distinct across Latin American subgroups, though the current sample did not have a sufficient range of heritage countries represented or large enough subsamples within heritage countries to examine such differences. Future research should focus efforts on collecting ample data from across Latin American countries of origin to explore how the pattern of findings from this study may vary as a function of intra-ethnic differences. Finally, though the nature of the sample was a strength of this study, as the transition to college is an opportune time to examine how traditional practices and values that are held before college contribute to college drinking, future research should explore these research questions in a non-college sample of Latina emerging adults.

Conclusion

Latina young adults are drinking at increasing rates (NIAAA, 2021), and research shows that Latinas/os/xs in the U.S. experience disproportionate adverse health consequences related to drinking (e.g., cirrhosis, Chartier & Caetano, 2010). Further, a growing body of literature shows that women are particularly at risk for experiencing negative health outcomes from drinking (e.g., cardiovascular disease, McCaul et al., 2019).

Culturally-sensitive preventative and treatment interventions that are carefully tailored to meet gender needs are greatly needed, particularly given that alcohol misuse is connected to a host of negative consequences among college students, including adverse mental health (Lamis et al., 2016) and sexual assault (Hingson et al., 2009).

This study is an important step toward improving understanding of how TFGRs relate to alcohol use in this population. We focused our research questions on examining TFGRs and alcohol use in response to major gaps in the literature noted in Perrotte and Zamboanga (2021) and described earlier in this paper. That said, more work is needed to identify the precise mechanisms underlying TFGRs and alcohol-related outcomes, perhaps by exploring the ways TFGR beliefs and practices change over time, over the course of the college life cycle, and amidst the frequently shifting contexts between time spent with family vs. peers. Similarly, more work is critically needed to understand the ways that various dimensions of TFGRs are adaptive and/or maladaptive across different contexts. In this way, we may be able to improve our specific understanding of how preventative interventions to mitigate problematic alcohol use may benefit from targeting elements of TFGR beliefs and practices that may be adaptive across contexts.

Finally, this study shed light on the importance of accounting for domains when interpreting the relations between TFGRs and alcohol use. Although the practice-based measure was more useful for cross-sectional analyses, practice and belief-based measures performed similarly for predicting future behavior. While practices are arguably more proximal to the behavior in question, research also suggests behaviors change more quickly than corresponding beliefs (Lau et al., 1990). It follows that beliefs are more distal, but also more stable. Thus, where practices may be particularly informative regarding near-term behavior, beliefs may have advantages when it comes to predicting behavior further in the future. This pattern of findings suggests the value of identifying potentially modifiable TFGRs or similar cognitions for addressing *future* alcohol use. Additional research examining the mechanisms connecting TFGR beliefs to later drinking, and accounting for those mechanisms in prevention programming designed to reduce drinking behaviors, could be extremely helpful in addressing alcohol consumption among Latina young adults.

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