LITHUANIAN PATERNAL HEALTH BEHAVIOR: ALCOHOL AND RELIGION

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Abstract
This paper explores the relationship between paternal religious affiliation, practice, and health behavior, namely consumption of alcohol. This research models alcohol consumption as an aggregate sum of weekly glasses of wine, 50 ml vodka shots, half-liter bottles of beer, and cocktails. The model includes religious confession among other independent variables including self-reported health status. In confessional comparison, the largest fraction, Catholic, is the reference category opposite Orthodox, Protestant, Other non-affiliated believers and Atheist. Significantly, Other believers and Lithuanian Protestants consumed significantly more alcohol than Catholic respondents. A unit increase in prayer or religious reading did not significantly predict a change in alcohol consumption. However a unit increase in weekly work hours significantly decreases alcohol consumption in contrast to a unit increase in time spent with children. Higher consumption is associated with lower self-reported health status.

KEY WORDS: consumption of alcohol, health, religion.

Anotacija
Straipsnyje nagrinėjamos tėvų išpažįstamos religijos, praktikos ir su sveikata susijusio elgesio, būtent alkoholio vartojimo, sąsajos. Alkoholio vartojimas vertinamas pagal suvestinį suvartotų alkoholio vienetų skaičių per savaitę. Tyrimui pasirinktas modelis, kurį taikant vertinamas išpažįstamos religijos ir respondentų įsivertintos sveikatos būklės ryšys. Didžiausių tikinčiųjų grupę sudaro katalikai, lyginant su stačiatikiais, protestantais, kitų religijų atstovais ir ateistais. Svarbu tai, kad kiti tikėjimai ir Lietuvos protestantai suvartojo daug daugiau alkoholio nei respondentai katalikai. Tyrimas atskleidė, kad kitą tikėjimą išpažįstantys žmonės ir Lietuvos protestantai išgeria statistiškai reikšmingiai daugiau alkoholio, lyginant su katalikais. Nenustatyta sąsają tarp laiko, skirtamo maldai ir religinės literatūros skaitymui, bei alkoholio vartojimo kiekio. Didesnis suvartojamo alkoholio kiekis susijęs su prastesniu savo sveikatos įsivertinimu.

PAGRINDINIAI ŽODŽIAI: alkoholio vartojimas, religija, sveikata.

Introduction
Is there a relationship between religiosity and alcohol use by fathers in Lithuania? Lithuanian primary religious communities in the 2011 national census comprised Roman Catholic 77.2 %, Russian Orthodox 4.1 %, Protestant (including Evangelical Lutheran, established in the 16th Century, and Evangelical Reformist) 0.8 %, other or unspecified 10.9 %, none 6.1 % (Central Intelligence Agency [CIA], 2017). The Jewish population of Lithuania is currently less than 1 %, whe-
reas it comprised over about 7% prior to 1939 (United States Holocaust Museum [USHMM], 2017). The current Muslim population is also less than 1%.

Since emerging from the Soviet ambit in 1991, there has been little economic research in Lithuania concerning self-reported health status and health behaviors as related to religious practice and affiliation (PubMed, 2012; Kasmel et al., 2004). The Republic of Lithuania with its population of about 3.5 million comprises the largest economy of the Baltic States since transition to multiparty democracy after the Soviet period (per capita income ca. $18,700). Although Lithuania was the first Baltic republic to break from Soviet hegemony, in economic freedom it lags behind its neighbor Estonia (Heritage Foundation, 2017). Lithuania’s GDP dropped by 14% in 2009, but it had consistent annual growth at 8% from 2004–2008 and 6% in 2011. As national tax revenue absorbs 32.6% of GDP (2011) – over double the U.S. GDP percentage of 15% (2011) – a significant under-the-table economy has developed to avoid taxation. Lithuania ranks 38th in corruption in 2016 (59 from 0…100, with 100 being “very clean”) (Transparency International, 2017). The Human Development Index – a composite of life expectancy, education and income (United Nations Development Programme [UNDP], 2017) – ranks Lithuania 37th of 188 countries (the lower margin of “very high” development); however, life expectancy by sex differs by 10 years (about 80 for females and 70 for males) (CIA, 2016). Health expenditures account for 6.6% of GDP (2014).

In 2002 about 25% of life expectancy differences among Eastern European compared to Western European men were attributable to differences in alcohol use or abuse (Rehm, Zatonksi, Taylor, & Anderson, 2011). Alcohol use reflects both secular and gender trends in Lithuania as also in neighboring Baltic states in the early post-Soviet period (Brunowskis & Ugland, 2003) based on two Baltic household surveys the so-called NORBALT I & II of 1994 and 1999. Specifically, compared to other Baltic states, Lithuania however exhibited higher prevalence of binge drinking behavior than found in Latvia and Estonia in 1999 (37% among Lithuanian drinkers, 16% by population, opposite 26 and 13% for Latvia and 19 and 13% for Estonia). Lithuanians also had a higher unit consumption at last drinking occasion compared to Latvia and Estonia (5.4, 3.9, and 3.3, respectively). There is also a decline in the number of non-drinkers in Lithuania in the 5-year period, from 25 to 20% overall but with a marked gender difference: 13 to 10% reduction for men and from 33 to 28% for women. While prevalence increased, weekly drinking, however, declined 38 to 29% with a starker gender gradient: from 28 to 19% for women (reduced almost a third) and 53 to 41% for men (reduced about a fifth). Beer and wine trended up, spirits down (for wine 22 to 34%; beer 13 to 22%,
but spirits 64 % down to 44 % in 1995–1999). This may reflect economic factors (lower excise taxes) as well as normative ones. Spirits have both higher alcohol content and more expense per unit. Among women spirit consumption dropped from 53 to 33 %, among men 68 to 47 %. In this early period of independence, Lithuanian men were more frequent, more intensive, and more expensive drinkers than women.

Alcohol consumption may affect family life socially in two ways: economic opportunity cost for household alcohol versus other consumption, and negative relational impacts among spouses and children in case of alcohol dependency, both being of interest to policy makers. The Lithuanian Health Programme approved by parliament in July 1998 aimed at a reduction of alcohol consumption from 1998–2010 (Ministry of Health of the Republic of Lithuania, 1998). This lead during 2008–2009 to restriction of advertising (TV, radio); re-increases in excise tax; and time, manner and place restrictions regarding alcohol vending (Veryga, 2009).

Klumbiene, Kalasauskas, Petkeviciene, Veryga, and Sakyte (2012) report 11.3 L of pure alcohol per capita Lithuanian consumption for 2010, with a 1990–2010 per capita doubling of consumption using biannual Finbalt Health Monitor Project standardized surveys. Defining ‘regular drinking’ as minimally once per week, the prevalence of regular male strong alcohol consumption ranged from a peak 33.8 % in 2000 to a low of 23.6 % in 2010, with a national campaign against excess drinking commencing in 2008. While the median consumption dropped from a 1994 high of 12.6 weekly strong drinks to lows of 7.6 in 2002, 2008, and 2010, respectively, mean weekly consumption remained much higher for the latter two surveys (12.2, 12.0). A declining median but relatively stable mean indicate markedly increased relative consumption above the median (marginally associated with problem drinking). By contrast, for women, strong drink medians for 1994 and 2010 were both 3.8 also with higher mean weekly consumption (5.9, 5.6), less than half of the male weekly mean.

Age-adjusted prevalence for male regular wine drinking was 5.8, 9.9 and 8.2 % in 2006–2010 surveys compared to a 13.4 % peak in 2000; median consumption ranged between 1.7 to 3.5 with 2.6 weekly glasses in 2010. For women, wine drinking peaked from a mean of 1.6 weekly glasses in 1994 to 3.3 in 2010, while the median increased from 0.7 to a peak 2.6 glasses (1994, 2010). Thus both show increased consumption and a shift to a moderately less expensive form of alcohol.

A travel app has described Lithuanian beer (Alus) as “light, crisp, cold, cheap and delicious” (In Your Pocket, 2012). Prevalence of regular male beer consump-
tion was less than 50% before 2000 (low of 40.0 in 1996 up to 48.5% in 1998) spiking to 59.0% in 2002, while moderating somewhat over the final three surveys (56.8, 53.2 and 51.1% respectively). Mean consumption ranged from a low of 7.8 weekly beers in 1998 to peak 10.4 in 2010. The medians were bimodal: 5.9 from 1994–2000 and 7.2 from 2002–2010. Higher means against more constant medians indicate higher levels of consumption and a turn toward less expensive sources.

For women regular beer consumption prevalence was much lower, only 7.3% in 1994 (about a sixth of male prevalence), peaking at 18.3% in 2000, 2002, and 2006 surveys (about a third of male prevalence) moderating at 12.2% in 2010. Means increased markedly from a low 3.3 (1994) to high 6.4 (2010) weekly beers with medians of 2.0 (1994–2002) and 3.9 (2004–2010) again indicating greater relative consumption for higher means relative to the medians.

While the above present detailed data on consumption in the early post-Soviet era and more recently, the intersection of religious confession and relative alcohol consumption is unexplored in Lithuania. However this has been a topic of increasing interest in U.S. contexts.

Regarding alcohol use, the relative influence of denominations, religiosity and religious attendance has been explored in the United States using reference group theory. This posits that a reference group influences behavior of an actor who is a member or one consistent with group norms when sharing status attributes, values and beliefs articulated with clarity and reinforced by sustained interaction and leadership prestige: Cocheran, Beeghley, and Bock (1988) explore adults regarding religious affiliation differentiating specific Protestant denominations. They note that denominational affiliation and concomitant views on alcohol use may serve more distinctively as normative reference group patterns concerning misuse (e.g., public drunkenness) have greater consistency across confessionally religious and secular reference groups.

According to permissive or prescriptive orientations, heterogeneous patterns among Protestants emerge on use probabilities (on average Lutherans higher, Baptists lower) while level of religiosity and attendance dampens use. Differences in misuse flatten comparatively across categories. It is an open question whether Protestant or other religious subcultures in a Baltic state such as Lithuania share the normative characteristics of corresponding ones in the United States.

Bock, Cochran, and Beeghley (1987) identified religiously unaffiliated individuals as having the highest levels both of use and abuse; Jews had the lowest level of abuse despite a fairly high level of use. Again conservative U.S. Protestants contrast to Liberal Protestants and Jews in use finding the strongest predictive effects.
Michalak, Torcki, and Bond (2007) explored religiosity and ethnicity across 21 affiliations (Mormons most proscriptive; Jews least so who with Lutherans and Presbyterians rated on average as moderate drinkers).

Men were each less proscriptive, religious, affiliated and abstaining while more likely to be heavy drinkers. The youngest cohort 18–29 was least religious, affiliated, and abstaining and 61% rated as heavy drinkers. Education was inversely related to abstention; high school educated were paradoxically both least likely to drink but most likely to drink heavily of drinking. In regression modeling college degreed were over twice as likely to drink than those having only some high school; college degreed were also less than half as likely to drink heavily). Blacks were the most proscriptive ethnicity. Hispanics most religious and more likely to drink heavily than Blacks or Whites. Marrieds were more abstaining and lighter drinkers. The percentage of occasional heavy drinkers ranged from about 2% to 28%, with No Religion and Catholics exceeding 25%. Regression odds ratios surprisingly indicated Jehovah’s Witnesses having an adjusted odds ratio of 2.26 followed by Lutherans at 2.12 compared to No Religion with Mormons least at 0.13 followed by Muslims at 0.17 for abstainers (including ex-drinkers). Controlling for demographics religious variables accounted for 28.1% of model variance concerning abstinence whereas for moderate to heavy drinking the religion variables account only for 2.9% of variance whereas age and gender alone accounted respectively for 11.8% and 9.6%.

Wells (2010) confirmed that religiosity and campus environment have strong negative impacts on alcohol comparing 30 days consumption retrospectively at an explicitly Protestant religious private liberal arts college and state public university. Abstention rates were over twice as high at the religious college. Males across both had over twice the level of consumption as females. In regression analysis the least religious were 27 times more likely to be a heavy alcohol users and 9 times more likely to be moderate users compared to the most religious students. Additionally students at the secular university were 4 times more likely to be moderate or heavy users. Yet over 70% of both cohorts reported that campus policy prohibited alcohol use for everyone.

Relevant literature suggests differential alcohol use for various religious groups. In the less developed world (Trinidad) adult and adolescent Roman Catholics reported generally higher rates of alcohol consumption than Muslims, Hindus, Pentecostals and Others in that order, although results for use among adolescents were non-significant (Rollocks, Dass, Seepersad, & Mohammed, 2008).

To date there is little research on religion and alcohol use in Lithuania.
1. The methodology of the research

Data

The survey was reviewed and approved by the institutional review board of the LCC International University, Klaipėda, Lithuania. The data comprised responses of 73 Lithuanian fathers to a 62 item survey adapted in part from the National Center for Fathering’s Personal Fathering Profile instrument of 1990 (National Center for Fathering, 1999). This includes inter alia demographics, household composition by age and sex; education, employment, relationship status and household income and expenditures; spousal characteristics (where applicable); and time allocation with children (five additionally indicated no children – whether indicating child deaths is unclear). Fifty-three percent of the sample respondents had two children, 21% one child, 15% three children and only two had more than three children. Since 1993 Lithuanian births have been lower than replacement level (Statistics Lithuania, 2012, p. 11) with deaths exceeding births by 19.3% for 2011 (Statistics Lithuania, 2012, p. 10). Respondent ages ranged from 26 to 56, with a higher than anticipated lower bound. Lithuanians are marrying increasingly late: male first-marriage average age jumped from was 27.7 in 2007 to 29.0 in 2011; for Lithuanian women the increase was from 25.5 to 26.6. Additionally 11% of Lithuanian women elect to marry citizens of foreign countries compared to 5% of men.

Household composition queries were followed by personal finance questions (debt) and household information technology use. Health related items included a health status query utilizing a 4-point Likert scale (excellent, good, fair, poor), height and weight, physician visits, smoking and alcohol consumption, and exercise. Finally, questions concerning religious affiliation were based on Lithuanian background categories and probed institutional and personal religious practice.

Methods

Respondents were randomly recruited in Klaipėda, Lithuania, and outlying areas in 2011. Klaipėda (capital of the like-named county) is located on the Baltic Sea and is the third largest city in Lithuania with a population of 177,823 in 2011. Survey correlations were run across variables and models variables selected based on significance of \( p = .10 \) or better.

Model

In modeling alcohol use as related to confessional and other characteristics we selected Ordinary Least Squares (OLS) regression. OLS regression yields the best
linear unbiased parameter estimate when the model is linear in parameters under a random sample (yielding conditional expected means of zero) whose independent variables (predictors) lack any exact linear relationship among themselves when measured relatively precisely; independent normally distributed errors (optimal for t and F tests) and (relatively) constant variance in the residuals from the mean (homoscedasticity) ensure minimum variance in the estimate. For parameter estimates we report raw betas with standard errors and standardized betas. Standardized betas are derived by converting the raw betas to reflect the change in the dependent variable per 1 standard deviation increase in the predictor (one can perform this conversion by multiplying the raw beta by the ratio of the standard deviations of the dependent and independent variables). This provides impact comparison between quite dissimilar variables. Result significance is indicated as ‡ $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, and *** $p \leq .001$.

We constructed our model dependent variable for alcohol consumption as an aggregate sum of weekly glasses of wine, 50 ml vodka shots, half-liter bottles of beer (also the standard Lithuanian bar glass), and cocktails. For independent variables we ultimately included religious confession (Catholic as the largest fraction is the omitted reference category opposite Orthodox, Protestant, Other non-affiliated believers and atheist); monthly hours of prayer or reading religious material (a stronger predictor in this context than monthly service attendance); weekly hours spent with children; weekly work hours; and self reported respondent health condition using a four-point Likert scale (1 excellent, 4 poor: relative to alcohol consumption a positive coefficient would indicate an association with those reporting poorer health).

**Results**

The data variation explained through the model is quite high (0.63) using the conservative adjusted R-square which discounts for the number of independent variables in the model (unadjusted R-square .68) and model F score very highly significant ($p \leq 0.001$).

See Table 1.

In contrast to the U.S. literature, other believers and Protestants consumed significantly more alcohol than did Catholic respondents ($p \leq 0.001$). From the raw betas, holding other predictors constant, Protestants consumed over a half drink more per week than Catholics and Other believers about eight-tenths more. The standardized betas indicate a stronger Protestant effect. Consumption by Orthodox is not statistically different than Catholic, nor for Atheist respondents.
Table 1. Consumption of Alcohol

|                              | Consumption of Alcohol |          |          |
|------------------------------|------------------------|----------|----------|
|                              | B (SE)                 | β        |          |
| Orthodox                     | .059 (.100)            | .053     |          |
| Protestant                   | .569*** (.161)         | .487     |          |
| Other – (Believer)           | .773*** (.197)         | .351     |          |
| Atheist                      | -.193 (.136)           | -.135    |          |
| Weekly work hours            | -.009* (.005)          | -.151    |          |
| Weekly time with kids (total)| -.001 (.002)           | -.047    |          |
| Monthly hours of prayer and reading religious material | .010 (.007) | .185   |          |
| Respondent health condition  | .117* (.060)           | .198     |          |
| Intercept                    | 1.544*** (N/A)         | (N/A)    | Adj. R-squared = .63 |

†p≤ .10. *p≤ .05. **p≤ .01. ***p≤ .001

A unit increase in prayer or religious reading did not significantly impact alcohol consumption, contrary to expectation, but a unit increase in weekly work hours significantly decreases consumption by a tenth. An hour increase in time spent with children, though with negative sign, did not reach significance. Those reporting lower self-reported health consume more alcohol (the positive coefficient is related to a Likert scale in which Excellent = 1 and Poor = 4).

In terms of standardized betas the impact hierarchy finds Protestant vs. Catholic > Other Believer vs. Catholic > Health Condition > Weekly Work Hours. In a separate model household income was not significant (p = 0.737) while absorbing significance of weekly work hours.
Table 2. Sample Characteristics of the Respondents

| Characteristic                                              | N  | Range | Minimum | Maximum | Mean  | SD   | Median |
|-------------------------------------------------------------|----|-------|---------|---------|-------|------|--------|
| Catholic                                                    | 73.00 | 1.00 | 0.00    | 1.00    | 0.51  | 0.50 | 0.00   |
| Orthodox                                                   | 73.00 | 1.00 | 0.00    | 1.00    | 0.15  | 0.36 | 0.00   |
| Protestant                                                 | 73.00 | 1.00 | 0.00    | 1.00    | 0.18  | 0.39 | 0.00   |
| Other Believer                                             | 73.00 | 1.00 | 0.00    | 1.00    | 0.04  | 0.20 | 0.00   |
| Atheist                                                    | 73.00 | 1.00 | 0.00    | 1.00    | 0.08  | 0.28 | 0.00   |
| Respondent’s weekly work hours                             | 70.00 | 35.00 | 30.00  | 65.00   | 46.17 | 7.53 | 45.00  |
| Respondent’s weekly hours of prayer and religious material | 61.00 | 60.00 | 0.00    | 60.00   | 3.70  | 10.31 | 0.00   |

2. Discussion

To our knowledge this is the first study to examine alcohol consumption focusing on the dimension of confessional affiliation of fathers in Lithuania. Most studies in the literature concerning religion and alcohol consumption examine the US where Protestants generally have higher abstention and lower drinking levels than Catholics (save for Episcopalians) (Michalak et al., 2007). An assumption that patterns will be identical in a Lithuanian cultural context is not justified in advance and is controverted here in the Lithuanian sample.

Catholic and Orthodox do not differ significantly in alcohol consumption in Lithuania and are culturally and liturgically quite similar (the filioque controversy and Great Schism of 1054 notwithstanding). In contrast to the U.S., Other Believers and Protestants both exhibit greater alcohol consumption than Catholics with very high significance and more than Atheists. More detail on the identity and religious institutional participation of Other believers would be of interest. The Protestant difference may reflect the Evangelical Lutheran fraction which comprises over 50% of the Lithuanian Protestant population. Among Protestants, U.S. Lutherans also have higher prevalence of consumption than U.S. Catholics albeit less in heavy drinkers (Michalak et al., 2007). One of the present authors is affiliated with a Protestant educational institution in both the U.S. and Lithuania and noted a culture more permissive of smoking and drinking in the Lithuanian context.

Interestingly, and contrary to expectation, level of devotional life (prayer, outside church religious reading) of Lithuanian fathers was surprisingly unrelated to consumption of alcohol. Compared to religious affiliation via standardized betas, an hour of increase in working hours significantly, if modestly, decreases alcohol
consumption. By contrast, an hour increase in paternal time with children was surprisingly not independently significant in impact: we expected a significantly negative externality on children with higher levels of consumption. This may indicate that parental alcohol consumption is more of a norm in Lithuanian culture than in other countries.

Conclusions

1. Catholic and Orthodox do not differ significantly in alcohol consumption in Lithuania and are culturally and liturgically quite similar. Level of devotional life (prayer, outside church religious reading) of Lithuanian fathers was unrelated to consumption of alcohol.
2. Worse health status and increased drinking are associated in the self-reported health variable. A unit change in reported health status has a stronger independent impact than working hours although (separately examined) poorer health also leads to fewer working hours, while fewer working hours predict higher drinking.

Limitations of the study

A key constraint for analysis of this data is the relatively modest sample size. This notwithstanding, several trends of interest concerning paternal religious affiliation, religious practice and alcohol consumption manifest: the model accounts for 63 % of data variation. Of interest for further research in this area is the effect of secular (time) trends across denominations, which cannot be explored with cross-sectional data, and for maternal patterns of alcohol consumption across denominations given background data indicating much lower female consumption in Lithuania. Finer differentiation among Protestants may yield differentiating results comparable to U.S. research. Additional research of interest is whether patterns in the Baltics are consistent with or deviate from the intersections of religion and alcohol use in conjunction with health status across the EU.

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