

# Suffer for the Faith?

## The Impact of Parental Religiosity on Children's Health

### Progress Report

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# Outline

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- 2 Research questions
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  - 1 The model
  - 2 Transmission mechanism
- 4 Empirical approach and data
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## Religiosity and health of adults

**Psychological, medical, and literature in social sciences:** Ambiguous effect of religiosity on health of adults

- + effects: Faithhealing, fasting, reducing drug addiction
- - effects: Extreme beliefs prevent medical care; unintended pregnancies and illegal abortions

**Economic literature:** Mostly positive effects of religiosity on socioeconomic outcomes of adults

- insures against idiosyncratic and aggregate shocks (Clark and Lelkes, 2006, 2009; Dehejia et al., 2007; Popova, 2010)
- leads to higher levels of education and income, lower levels of welfare receipt and disability, higher levels of marriage, and lower levels of divorce (Gruber, 2005, among others)
- reduces risky health behavior (Fletcher and Kumar, 2013)

What about kids?

# What about kids?

## **Own religiosity affects health, education, behavior of adolescents:**

- risky health behavior of adults and adolescents (Gruber and Hungerman, 2008; Fletcher and Kumar, 2013, among others)
- improves educational outcomes of adolescents and reduces their asocial behavior (Regnerus, 2003)
- improves psychological and overall health condition of children and adolescents of 6-19 ages (Chiswick and Mirtcheva, 2013)

# Research questions

- 1 **Does parental religiosity affect children's health?**
  - 1 general health condition
  - 2 presence of chronic diseases
- 2 **Does the impact (if any) differ for children of different ages? for parents with different religious denomination? for parents with different level of education?**

## **Expected Contribution:**

Theory: adaptation of Chiswick and Mirtcheva's (2013) to account for parental religiosity

Empirics: causal results regarding general health and chronic diseases of children in Russia

Policy: implications for improving children's health

# The model of demand for kids' health

Inspired by Grossman (1972) and Chiswick and Mirtcheva (2013)

Intertemporal utility of a child:

$$U = U(\phi_0 H_0, \dots, \phi_t H_t, Z_0, \dots, Z_t) \quad (1)$$

$H_0$  is the stock of initial child health at birth

$H_t$  is the stock of health in period  $t$

$\phi_t$  is the flow of health services per unit of stock in period  $t$

$h_t = \phi_t H_t$  is the total demand for health services

$Z_t$  is the total consumption of all other goods and services besides health in period  $t$

The death happens when the stock of health is minimal,  $H_t = H_{min}$

## The model of demand for kids' health

No health depreciation with age is assumed for children (*a la* Chiswick and Mirtcheva, 2013)

Thus,  $I_t$ , the gross investment in the health stock in period  $t$ , equals to net investment:

$$H_{t+1} - H_t = I_t \quad (2)$$

Health production function is presented as follows:

$$I_t = I_t(M_t, TH_t, PE_t, PR_t) \quad (3)$$

$M_t$  is the availability of medical care

$TH_t$  is the time of parents available for investing a child's health

$PE_t$  is parental education

$PR_t$  is parental religiosity

# Hypotheses

- 1 Parental religiosity has a positive effect on children's health
- 2 Different religious denominations affect similarly
- 3 The effect on health of younger kids is stronger than on health of older kids
- 4 The effect on health of kids of the less educated parents is stronger than of the more educated parents
- 5 When standard medical care is in a close proximity, religiosity has weaker effect



## Potential transmission channels

- religiosity as a regulator reduces unhealthy behaviors (drinking, smoking), but some religions may also discourage certain medical treatments
- social capital as a moderator. Religious networks may provide support when a person has medical problems
- psychological effects of religion may improve emotional health

## Empirical model

$$H_{ij} = \beta_0 + \beta_1 PR_{pj} + \gamma' \mathbf{F}_{ij} + \delta' \mathbf{X}_{ij} + \lambda_j + \epsilon_{ij} \quad (4)$$

$i$  stands for a child,  $j$  stands for a region,  $p$  stands for a parent

$H$  represents child's health

$PR_{pj}$  is a dummy variable and equals 1 if a parent assesses him/herself as being a believer/belonging to a particular religious denomination

$F_{ij}$  is the vector of family characteristics such as education of a parent, marital status, employment statuses of a parent, and household income.

$X_{ij}$  is the vector of child characteristics such as initial health status at birth, gender and age.

$\lambda_j$  is a regional fixed effect.

$\epsilon_{ij}$  is a stochastic disturbance

## Identification strategy

- 1 Eq. (4) is initially estimated using the linear probability model and probit.

But: potential endogeneity problem due to selection on observable and unobservable characteristics and simultaneity

- 2 To deal with endogeneity problem, I apply the propensity score matching (Rosenbaum and Rubin, 1983).

- 1 analyze the propensity of a parent to be religious

$$\Pr(PR_{pj} = 1 | X_{pj}) = \Psi(\alpha'X_{pj} + \mu_j) \quad (5)$$

$X_{pj}$  is the vector of parental characteristics, including age, gender, education, income, marital and employment status

$\mu_j$  is a regional fixed effect

- 2 match children of religious parents to children of non-religious parents based on propensity scores and obtain ATT

# Data

The Russia Longitudinal Monitoring Survey (RLMS), 2000-2003

## Parental religiosity

- 1 Of what religion do you consider yourself? Orthodoxy/Islam/Other religion
- 2 What do you think about religion? You are a believer/ You are more a believer than a non-believer/ You are more a non-believer than a believer/ You are a non-believer/ You are an atheist

## Children's health

- 1 Has the child had any health problems in the last 30 days? Yes/No
- 2 Has (he/she) been in the hospital in the last three months? Yes/No
- 3 Did he/she skip any of required vaccinations? Yes/No
- 4 How would you evaluate (his/her) health? 5-point scale
- 5 Does (he/she) have any kind of chronic illness? Yes/No (heart disease, lung disease, liver disease, kidney disease, gastrointestinal disease, spinal problems, another chronic illness).

# Preliminary results

Table 1. OLS/linear probability model results

	Health problem last month	Hospitalized last 3 months	Chronic heart disease	Chronic stomach disease
believer	-0.0129 (0.0455)	0.0259 (0.0212)	-0.0123 (0.0270)	0.0826** (0.0267)
orthodox	0.0162 (0.0413)	-0.0116 (0.0245)	-0.0169 (0.0245)	0.0240 (0.0244)
islam	-0.0276 (0.0908)	0.0506 (0.0423)	-0.0587 (0.0539)	0.0612 (0.0530)
believer (5-point scale)	0.0058 (0.0172)	-0.0009 (0.0081)	-0.0003 (0.0104)	0.0417*** (0.0096)

Note: Standard errors are in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Other controls: parental education, parental employment status, parental marital status, household income, pediatrician in a close proximity, gender of a kid, age of a kid, body mass index of a kid at birth, regional fixed effects

# Preliminary results

Table 3. Kernel density matching results

	Health problem last month	Hospitalized last 3 months	Chronic heart disease	Chronic stomach disease
believer	.0408 (.0562)	.0386** (.0184)	-.0165 (.0324)	.0594*** (.0169)
orthodox	.0358 (.0497)	-.0190 (.0252)	-.0415 (.0307)	.0074 (.0273)
islam	-.0338 (.0917)	.1002* (.0705)	-.0550* (.0311)	.0232 (.0722)

Note: average treatment effect on treated is presented, that is the average effect of parental religiosity on health of children of religious parents, as compared to children of non-religious parents. Standard errors are in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Other controls: parental education, parental employment status, parental marital status, household income, pediatrician in a close proximity, gender of a kid, age of a kid, body mass index of a kid at birth, regional fixed effects

## Preliminary conclusions

- 1 when endogeneity is not controlled for, religiosity of parents has no effect on health outcomes of children, except for the presence of stomach diseases
- 2 when endogeneity is controlled for, parental religiosity has no effect on probability of having health problems, but affects positively the probability of hospitalization and presence of chronic diseases
- 3 robustness checks are needed

## Future steps

- discuss transmission mechanism more extensively
- obtain results for other health indicators (vaccinations, different chronic diseases, and self-evaluation of health status), for children of different ages, for parents of different education
- assess the quality of matching
- robustness checks
- interpret and discuss the results



Thank you!  
Questions? Comments?

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