MUNI

COMMENTARY TO HABILITATION THESIS[1]

State of knowledge

Religiosity and spirituality (R/S) are multi-dimensional constructs related to many areas of human life, including health. Most research shows positive associations of R/S with physical and mental health. However, some studies still report mixed or negative associations and there is a lack of systematic research that focuses on this contradiction. Moreover, a majority of studies exploring the associations of R/S with health have been conducted in predominantly religious countries and the results from secular ones may be underreported.

Objectives of the work

This thesis aims to examine the relationships between R/S and health in the secular conditions of the Czech Republic. A further aim is to explore possible sources of the discrepancies between the findings of various research studies in this area, with a special focus on measurement problematics. Finally, this thesis offers four tools for measuring R/S that have not yet been validated in the Czech environment and one newly developed instrument for measuring guilt and shame experience, i.e., a construct that may interfere with R/S assessment. Thus, **Study 1** provides an overview of R/S prevalence in the country and the attitudes of Czech inhabitants towards R/S. **Studies 2, 3, 4 and 5** provide the results of validation analysis of four selected R/S measures. **Study 6** describes validation analyses of a new tool for measuring the experience of guilt and shame, a construct closely linked to R/S. Further studies explore possible roots of R/S attitudes (**Study 7**) and pathways of R/S to health: a psychological pathway (**Studies 8 and 10**), social support (**Studies 9 and 10**) and behaviour (**Study 10**). Finally, **Study 11** examines the associations between R/S and sensory processing sensitivity, a potentially overlooked confounding variable, in the associations of R/S with health.

Study samples and procedures

This thesis is based on nine samples from four nationally representative surveys and five online surveys. **Studies 1 and 2** used a nationally representative sample of the Czech population aged fifteen years and older (n=1800; 46.4 ± 17.4 years; 48.7% men) collected in September and October 2016, through a standardised interview with the respondents (face-to-face). **Studies 3, 5 and 7** used a nationally representative sample of the Czech population aged 15

[1] The commentary must correspond to standard expectations in the field and must include a brief characteristic of the investigated matter, objectives of the work, employed methodologies, obtained results and, in case of co-authored works, a passage characterising the applicant's contribution in terms of both quality and content.

years and older (n=1000; 46.0±17.3 years; 48.6% men) gathered in November and December 2014 through a standardised interview with the respondents (face-to-face). **Study 4** is based on a nationally representative sample of the Czech population aged 15 years and older (n=1797; 45.9±17.67 years; 48.6% men) collected by in November 2013 through a standardised interview with the respondents (face-to-face). For **Study 6**, an online sample (n=1101; 34.4±13.0 years; 26.9% men) was gathered between June and November 2017. **Study 8** used an online sample of Czech respondents aged 15 years and over gathered by snowball sampling (n=464; 30.7±12.6 years; 27.2% men) between April 2017 and November 2017. For **Study 9**, a nationally representative Czech adolescent sample (n=4182; 14.4±1.07 years; 48.6% boys) was obtained from the 2014 Health Behaviour in School-aged Children study between April and June 2014. **Study 10** used an online sample of the Czech population aged 18 years and over gathered by a professional agency (n=1,434; 48.3±16.4 years; 50.3% men) in April 2020. **Study 11** utilized data from two online surveys of the Czech population aged 18 years and over gathered by a professional agency (n1=1,406; 48.1±16.4 years; 50.6% men; n2=1,494; 50.7±15.8 years; 55.9% men) collected in April 2020 and in April 2021.

Statistical analyses

Several statistical methods were used across this study. All analyses, with the exception of the mediation analysis, were performed using the statistical software IBM SPSS Statistics, versions 21 or 28 and R 3.4.0. Each chapter provides detailed information about the performed statistical analyses. **Study 1** used Bayesian statistical analysis methods. **Studies 2–6** provide the results of psychometric explorations. All these studies assessed the normality of the distribution of the observed variable and as all the data deviated from the assumption of normal distribution, non-parametric statistical methods were consistently utilised. The mutual correlation of the individual scale items was evaluated using Spearman's correlation coefficient or polychoric correlations.The determination of the number of factors involved multiple methods, encompassing Kaiser's criterion, scree plots, parallel analysis and the Minimum Average Partial (MAP) test. In the evaluation of data distribution, the main component was the application of factor analysis techniques. Cronbach's alpha and McDonald's omega were employed to assess the reliability of the scales. **Studies 7–11** are cross-sectional studies. As the first step, these studies generally assessed the normality of distributions. For the assessment of differences between sociodemographic groups, the Mann–Whitney U test, a Chi-square test and a Test of Proportions (Z-test) or the Kruskal–Wallis test were performed. If the study explored association between independent variables, Spearman's rank order correlation (r_s) was used because of the non-normal distribution of the data. Consequently, in

most cases, binary logistic regression was used to assess the association between independent and dependent variables.

A summary of findings

This thesis summarises the findings of 11 studies supplied by other studies of the author and shows concrete examples of five potential sources of heterogeneity in research findings in the area of R/S and health. First, it documents the role of a cultural context, i.e., a secular Czech environment, showing a specific dynamic of change of religious beliefs under challenging conditions and potential confusion in understanding questionnaires on spirituality. Second, it demonstrates how various R/S instruments can differ even in their associations with basic sociodemographic factors. Third, it points to causality problems. Fourth, it shows how variable scaling, dichotomisation and the combination of religiosity and spirituality can lead to substantially differing results. Fifth, it also reports the substantial role of confounding variables, specifically the sensory processing sensitivity, that so far has not been assessed in this context.

Regarding the relationship between R/S and health, this thesis explores the pathways connecting R/S and health and, based on other studies by the author, it also presents selected associations of R/S with mental health and offers some additional insights into the associations with physical health. In general, the thesis shows that the associations can vary from negative to positive in the Czech environment and can be significantly influenced by the abovementioned factors. It also offers substantial evidence to state that assessment of at least two R/S aspects, i.e., an external aspect (e.g., religious affiliation, religious attendance or participation in church activities) and an internal aspect (spirituality level or the attitude to God) is of key importance in getting more precise results and that including only one of these aspects may sometimes even lead to contradictory findings. Furthermore, it also indicates that a harmonic combination of religiosity and spirituality (equivalent to an internalised religiosity) seems to be protective, while, on the contrary, their discrepancy seems to be a risky combination.

Author's contribution

[1][2] Furstova, J., Malinakova, K., Sigmundova, D., & Tavel, P. (2021). Czech out the atheists: A representative study of religiosity in the Czech Republic. *The International Journal for the Psychology of Religion*, 31(4), 288-306. https://doi.org/10.1080/10508619.2020.184496

Total author's share: 20 %

Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	30	15	100

[2] Malinakova, K., Trnka, R., Sarnikova, G., Smekal, V., Furstova, J., & Tavel, P. (2018). Psychometric evaluation of the Daily Spiritual Experience Scale (DSES) in the Czech environment. *Ceskoslovenska Psychologie*, 62, 100-113.

Total author's share: 70 %

Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	70	70	100

[3] Sarnikova, G., Malinakova, K., Furstova, J., Dubovska, E., & Tavel, P. (2018). Psychometric evaluation of the functional assessment of chronic illness therapy-spiritual well-being (FACIT-Sp) scale in the Czech environment. *Ceskoslovenska Psychologie*, 62, 114-128.

Total author's share: 30 %

Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	70	40	25

[4] Tavel, P., Sandora, J., Furstova, J., Lacev, A., Husek, V., Puzova, Z., Polackova Solcova, I., & Malinakova, K. (2021). Czech version of the spiritual well-being scale: Evaluation and psychometric properties. *Psychological Reports*, 124(1), 366-381. https://doi.org/10.1177/0033294119898117

Total author's share: 50 %

Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	60	50	25

[5] Janu, A., Malinakova, K., Furstova, J., & Tavel, P. (2018). Psychometric evaluation of the Religious and Spiritual Struggles Scale (RSS) in the Czech environment. *Ceskoslovenska Psychologie*, 62, 2-18.

Total author's share: 40 %

Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	80	40	25

[2] Bibliographic record of a published scientific result, which is part of the habilitation thesis.

[6] Malinakova, K., Cerna, A., Furstova, J., Cermak, I., Trnka, R., & Tavel, P. (2019). Psychometric analysis of the guilt and shame experience scale (GSES). *Ceskoslovenska Psychologie*, 63(2), 177-192.
Total author's share: 70 %
Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	70	70	100

[7] Janu, A., Malinakova, K., Kosarkova, A., & Tavel, P. (2022). Associations of childhood trauma experiences with religious and spiritual struggles. *Journal of Health Psychology*, 27(2), 292-304. https://doi.org/10.1177/1359105320950793
Total author's share: 40 %
Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	70	30	100

[8] Gabova, K., Malinakova, K., & Tavel, P. (2021). Associations of self-esteem with different aspects of religiosity and spirituality. *Ceskoslovenska Psychologie*, 65(1), 73-85. https://doi.org/10.51561/cspsych.65.1.73
Total author's share: 50 %
Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	70	40	100

[9] Malinakova, K., Trnka, R., Bartuskova, L., Glogar, P., Kascakova, N., Kalman, M., van Dijk, J. P., & Tavel, P. (2019). Are adolescent religious attendance/spirituality associated with family characteristics? *International Journal of Environmental Research and Public Health*, 16(16), 2947. https://doi.org/10.3390/ijerph16162947
Total author's share: 80 %
Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	70	70	100

[10] Buchtova, M., Malinakova, K., Novak, L., Janu, A., Husek, V., van Dijk, J. P., & Tavel, P. (2022). The associations of experiencing the COVID-19 pandemic with religiosity and spirituality: A cross-sectional study in Czech adults. *International Journal of Public Health*, 67, 1604712. https://doi.org/10.3390/ijph.2022.1604712
Total author's share: 40 %
Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	80	30	100

[11] Buchtova, M., Malinakova, K., van Dijk, J. P., Husek, V. & Tavel, P. (2024). Sensory processing sensitivity is associated with religiosity and spirituality. *Humanities and Social Sciences Communications*, 11, 244. https://doi.org/10.1057/s41599-024-02738-7
Total author's share: 40 %
Author's share specified for each category of contribution:

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
	80	40	100