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Religiousness and health locus of control in Polish Physical Education students

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A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

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Key words: *religious commitment, health locus of control, Polish undergraduates.*

Abstract

Background: *The aim of this research was to determine relationships between religious commitment and health locus of control (HLC) for the group of students of the University of Physical Education in Warsaw, Poland, including gender and study faculty differences.*

Material/Methods: *Full-time students (*n *= 247) of the Warsaw University of Physical Education were investigated. Religious Commitment Scale (RCS) and Multidimensional Health Locus of Control Scale (MHLC) were used.*

Results: *Few and weak relationships between religious commitment and health locus of control were found; they were stronger within the group of male and physical education students. Cluster analysis by the Ward agglomeration method resulted in distinguishing three internally homogeneous groups.*

Conclusions: *The research presented in this article should be considered a reconnaissance of the problem. The relationships between investigated variables has not been fully recognized and explained, hence this issue requires further research.*

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Introduction

The problem of the influence of religiousness and spirituality on health becomes more and more frequently investigated. Research results show that religiousness is positively correlated with mental health [1, 2, 3]. This correlation may be explained by several factors. First of all, participating in religious practices provides ground for systematic social interactions of individuals sharing similar attitudes and values [4]. Secondly, religion helps to cope with life problems and provides explanations of negative situations, which are very often perceived as a chance for a spiritual development [5]. Religion may therefore act as a stress protective shield [6] and be helpful in solving personal problems [7].

The above conclusions are valid also in the case of university students' population. The higher their level of religiousness, the better is their mental well-being and the lower level of stress [8]. The same concerns life sense and happiness perception. This pattern was observed both for Christian European societies [9] and for Muslim populations from various countries [10, 11, 12]. A similarly strong positive correlation between religiousness of young adults representing different religions and life satisfaction was observed in South Africa [13]. Students' religiousness was also correlated with a state of depression. Increasing scores on religiousness scales corresponded with declining depression scores. The type of religion did not differentiate this relationship [2, 4]. Religious beliefs were also perceived by students themselves as a source of their mental comfort and not the source of tensions and conflicts [14].

Physical health and undertaking healthy behaviors may influence the relationship between religion and mental health. Religion promotes healthy lifestyle. According to Afro-American Christians, their religious beliefs and practices positively impact their health, improving stress control, bringing positive emotions and promoting spiritual health [15]. Religiousness might therefore be a factor preventing smoking and alcohol consumption of high-school students [16, 17], alcohol consumption alone [18, 19] and smoking marihuana [20] by university students. Longitudinal research of Wills, Yaeger and Sandy [21] also proved that religiousness decreases the risk of using psychoactive substances by adolescents. The stronger was the declaration on religious commitment, the lower was the probability of alcohol addiction [22].

Some research also revealed a positive correlation between religiousness and physical activity of various intensity levels [23, 24, 25]; visiting churches and praying [26], also in the case of college students [27].

Health locus of control (HLC) may be a confounding variable effecting the relationship between religiousness and health-related behaviors. HLC is a specific type of locus of control concept introduced by Rotter [28] and concerns the perception of health determining factors. General health locus of control was redefined into the internal health locus of control (internal HLC) and the external locus of control expressed in a form of beliefs about the impact of others (powerful others HLC) and a play of chance (chance HLC) [29]. Higher internal HLC means accepting higher personal responsibility for one's health.

Expecting correlation between religiousness and HLC is justified by previous research results on religiousness and general locus of control. Research results suggest a negative correlation between religiousness and perceived control [30]. Religiousness may increase beliefs on external control because of the required acceptance of the fact that God's decisions and actions are beyond human comprehension [31]. Yet, at the same time, relying on God's wisdom may increase the perceived internal control 32]. When an individual perceives God as a partner and support in dealing with life's problems, his or her internal control increases.

But the relationship between locus of control and religiousness in some research was also put into doubt [33]. Inconsistent research results suggest a complex nature of the relationship between religiousness and locus of control. A partial explanation of this situation may be the concept of locus of control itself, which refers to generalized expectations regardless of the field of human activity. Some of these controversies may probably be solved through focusing on specific dimensions of locus of control, which in the case of our research is health locus of control.

Conclusions concerning the existing correlation between religiousness and health locus of control are additionally supported by the presented above correlations between religiousness, healthy

behaviors and health status. Yet, research directly investigating this relationship is scarce. Research on elderly patients awaiting open heart surgery [34, 35] found a positive correlation between internal HLC and using prayer for coping with cardiac surgery outcomes; internal locus of control was yet negatively correlated with subjective religiousness.

The factor that should be taken into account when analyzing the relationship between students' religiousness and locus of control is gender. Research on a sizeable sample of Muslim students in Kuwait [10] revealed that women were significantly more religious than men. Similar results were received in South African research on young adults [13]. Women are more often involved in religion-related activities [36], present higher intrinsic religious commitment, perceive religion as more a important domain of life [37] and pray more during their study period than man [38].

A similar pattern was also observed for Polish students. Female students presented stronger religious commitment, especially with regard to showing kindness to other people [39]. This research included the sample of 75 women and 78 men aged 18-26 and studying in Warsaw and Lublin universities. Research tools applied for this research were Religious Commitment Scale, Cattell's 16 PF Personality Questionnaire and Emotional Control Questionnaire of Brzeziński. Four internally homogeneous groups of students were recognized with regard to their research results. The first one consisted of students (mainly women) who presented the highest level of religious commitment. Their involvement concerned both their intrinsic attitudes expressed by praying and external dimension – showing kindness to other people. They were introverts of low emotional resistance, prone to feeling guilty and representing a high level of internal tension. The second group included individuals (mainly men) who were strongly committed and praying, but less prone to expressing their religiousness in formal religious practices, more independent, better internally coherent and emotionally stronger. The third group included the least committed students (both with regard to intrinsic and external dimension of religious involvement), presenting a high level of nervous tension, prone to outward and inward aggression. Members of the fourth group were moderately religiously committed, ambivertive, of radical views, high sensitivity and weakly internally integrated [39]. This well-known in Poland research on students' religious commitment was published almost 20 years ago and presents data collected in the years 1988-1989. The time of research covering first years of system transition in Poland might certainly and significantly influence the results.

This research also revealed numerous correlations between religious commitment and specific personality traits. In the case of women, religious commitment was expressed through helping other people and engaging in charity activities and was correlated with a strong character, trusting other people and conservative attitudes. Intrinsic commitment of female students is facilitated by emotional balance and low internal tension. With men, religious commitment is associated with simplicity and sensitivity (regardless of whether it is a positive or a negative correlation), and intrinsic commitment is correlated with unconventionality and character strength [39].

In the majority of research no significant differences in HLC were observed for males and females [40]. In the investigated group of Polish universities students, a higher level of internal HLC was yet observed among men [41].

According to Fiori and colleagues [31], the relationship between religiousness and locus of control may also depend on gender. In the case of women, religiousness may be positively correlated with both external and internal locus of control, while for men this correlation concerns only external locus of control.

Research on Polish PE students shows that gender intermediates the relationship between intrinsic religious motivation, frequency of praying and religious ways of dealing with stress and life satisfaction [42]. A moderately positive correlation between intrinsic religiousness and the frequency of praying and positive affect was observed among men. With female students, intrinsic religiousness was not correlated with life satisfaction. Also the role of intrinsic religiousness and religious ways of dealing with stress and with negative affect is similarly diversified.

Religiousness of Polish students also depends on their study faculty [43]. This variable differentiates the level of religious commitment [44], the orthodox level of religious views [45]; a subjective perception of the importance of personal religious life and participation in religious practices

[43]. Lower religiousness scores and a lower level of religion-related behaviors is usually observed more among social sciences students than among students of technical or biological faculties. This fact justifies introducing this factor to our analysis.

The aim of our research was to determine relationships between religious commitment and HLC for the group of students of University of Physical Education in Warsaw, Poland, including gender and study faculty differences.

Material and methods

Participants

247 full-time students of Warsaw University of Physical Education were involved in the research. They were students from the Faculty of Physical Education (*n* = 96; 39.0%), the Faculty of Tourism and Recreation (n = 76; 30.9%) and the Faculty of Physiotherapy (n = 75; 30.5%). All three sub-samples included similar numbers of men and women

Methods

Religious Commitment Scale (RCS) of Golan [39] was applied in order to assess the religiousness level. This scale enables evaluating the intensity of religious commitment. It consists of 28 items, and the respondent is requested to agree or disagree with provided statements using a 7-point scale (from "strongly disagree" to "strongly agree"). Fourteen items concern intrinsic commitment, and this group includes 7 items on praying activity (Pray) and 7 on deepening own religiousness (Religiousness); 14 items concern external commitment, including 7 – orientation to other people and showing kindness to others (People) and 7 – expressing religiousness through religious practices (Church). Result for each sub-scale is defined through summing up all scores and dividing them by maximal scores. The range of the final score would therefore vary from 0 to 1. Reliability of the scale was ascertained through repeated measurement (two surveys with the same scale used); test – retest (after a week) correlation coefficient was 0.85. Face validity of the scale was evaluated as sufficient by several competent judges [39].

Multidimensional Health Locus of Control Scale (MHLC) of K.A. and B.S. Wallston and R. DeVellis was also applied in the research. Polish adaptation of this scale was prepared by Z. Juczynski [40]. The scale consists of 18 items concerning generalized expectations in three dimensions of health locus of control (6 items in each subscale): (1) Internal control – a belief that an individual has a power of controlling his own health; (2) Powerful others externality – a belief that our state of health is a result of actions of others, mainly medical professionals; (3) Play of chance externality – a belief that our health is dependent on a play of chance or on other external factors.

The scale has a sufficient level of reliability (Cronbach alfa varied between 0.54 and 0.74; test-retest correlation coefficient varied from 0.38 to 0.72 depending on subscale and scale version). Scale's validity was defined through correlating internal locus of control with the self-efficacy level (0.32), self-esteem perception (0.32) and the perceived value of health (0.30). Differences observed for the group of patients and healthy respondents were also in compliance with theoretical background of the research. This proves satisfactory validity of the research tool [40].

Results

R-Pearson correlation coefficients were calculated for the relationship between religious commitment and HLC. For the whole sample the highest correlation was found between dimensions of religious commitment and perceived powerful others' influence on health of an individual. The latter is weakly positively correlated with expressing religious commitment through participation in religious practices (r = 0.155; p = 0.015), orientation to other people and showing kindness to others (r = 0.158; p = 0.013) and hence with general external involvement (r = 0.159; p = 0.013). The influence of powerful others is also positively correlated with intrinsic involvement (r = 0.183; p = 0.004) and its both dimensions: deepening own religiousness (r = 0.181; p = 0.004) and praying (r = 0.158; p = 0.013).

Internal HLC is for the whole group positively correlated with external involvement oriented to other people (r = 0.143; p = 0.024) and deepening own religiousness (r = 0.105; p = 0.039).

Correlation coefficients were also calculated for religious commitment items and HLC for groups of the studied men and women. A lower number of statistically significant relationships were observed among women. In the case of this subgroup, strong beliefs on the impact of powerful others were correlated with strong orientation to other people's external involvement (People) (r = 0.185; p = 0.049). Beliefs on the role of chance were negatively correlated with expressing religiousness through religious practices (Church; r = -0.193; p = 0.041).

Relationships between religious commitment and perceived impact of powerful others on health concerned more dimensions of commitment and was stronger in the group of male students. Correlations concerned general intrinsic involvement (r = 0.235; p = 0.006) and praying alone (r = 0.237; p = 0.006) as well as religiousness (r = 0.211; p = 0.014) and general external involvement (r = 0.167; p = 0.05) and religious practices alone (r = 0.201; p = 0.020).

Separate analyses for study faculties show that there was only a significant relationship between external dimension of religious commitment and the perceived role of powerful others among physical education students (r = 0.207; p = 0.043). Because of small a number of respondents in faculty subgroups, some correlation coefficients values similar to those observed for the whole group reached only the level of a tendency. Nevertheless, we decided to use them for comparisons. With PE students, strong beliefs on the role of powerful others is correlated with strong commitment expressed through praying (r = 0.174; p = 0.089), deepening own religiousness (r = 0.171; p = 0.097) and external involvement (r = 0.179; p = 0.080), including religious practices dimension (r = 0.182; p = 0.075). With physiotherapy students there was a relationship between internal control and commitment oriented to other people (r = 0.202; p = 0.082) as well as between powerful others and deepening own religiousness (r = 0.211; p = 0.070). With tourism and recreation students, beliefs on the important role of powerful others was positively correlated with external commitment oriented to other people (r = 0.201; p = 0.081).

Cluster analysis by the agglomeration Ward's method was also applied for all analyzed psychological variables (dimensions of religious commitment and health locus of control). The analysis resulted in defining three internally homogeneous groups. One-way ANOVA analysis (Tab. 1) revealed that these groups were significantly different with regard to all scrutinized dimensions of religiosity and HLC. Based on η^2 effect size indicator it may be claimed that these differences are much higher for religious commitment than for HLC. The highest effect was observed for the total intrinsic commitment indicator, followed by the external commitment indicator. There was vary little diversity of locus of control dimensions and the effect was visible mainly for the perceived role of powerful others on health.

Students of all analyzed faculties were similarly represented in all three constructed groups (χ^2 = 3.63; p > 0.05). In the first concentration of 94 respondents, there were 41 PE students (42.7% of all PE students in the project), 24 tourism and recreation students (31.6% of their total number) and 29 students of physiotherapy (38.7% of their total number). The second concentration included a total number of 75 students: 30 PE students (31.4% of their total number), 24 tourism and recreation students (31.6% of their total number) and 21 physiotherapy students (28.0% of their total number). In the third concentration (n = 78) all three faculties were almost equally represented: physical education (n = 25; 26.1%), physiotherapy (n = 25; 33.3%) and tourism and recreation (n = 28, 36.8%).

Proportions of men and women in the three concentrations were quite different (χ^2 = 5.258; p = 0.072). In the first concentration, there were 39 (34.5%) men and 55 (41.0%) women. More women (n = 45; 33.6%) than men (n = 30; 26.6%) were allotted to the second concentration, while significantly more men were present in concentration three (men: n = 44; 38.9% and women: n = 34; 25.4%).

In the most numerous first concentration there were students presenting a moderate religious commitment level, both with regard to its external (orientation to other people and showing kindness to others and expressing religious commitment through participation in religious practices) and internal dimension (praying and deepening own religiousness). Religious commitment of students from the first concentration was significantly higher than that of students from the third concentration and significantly lower than of the respondents from the second concentration. This

moderate group represents also the weakest belief in the role of chance and powerful others as health impacting factors. This group was the most balanced with regard to gender and representatives of different study faculties.

The second concentration included students with the highest scores on all subscales of religious commitment, representing strong intrinsic and external involvement significantly stronger than that of students from two remaining concentrations. Students from this group were also the most convinced that their health depends on powerful others, and in comparison to students from the third concentration group they believed less in internal health control. This group is dominated by women with balanced study faculty representatives distribution.

The third concentration included mainly male students with the weakest religious commitment (both internal and external dimension); weaker beliefs on personal control over own health and the role of powerful others in comparison to concentration two, but stronger beliefs on the play of chance in comparison to concentration one group.

Table. 1. Results (M ± SD) of Religious Commitment Scale and Multidimensional Health Locus of Control Scale in three clusters

Variables	Clusters			ANOVA	Tukey post hoc test		
	1 *n* = 94	2 *n* = 75	3 *n* = 78	*F; p*; η^2	1-2	1-3	2-3
External commitment – church	0.49 ± 0.102	0.65 ±0.105	0.32 ± 0.110	195.40; 0.0001; .616	0.0001	0.0001	0.0001
External commitment – people	0.66 ± 0.086	0.77 ±0.071	0.48 ± 0.122	179.93; 0.0001; .596	0.0001	0.0001	0.0001
External commitment	0.57 ± 0.080	0.71 ±0.070	0.41 ± 0.074	327.19; 0.0001; .728	0.0001	0.0001	0.0001
Internal commitment – pray	0.55 ± 0.119	0.73 ±0.104	0.31 ± 0.136	233.96; 0.0001; .657	0.0001	0.0001	0.0001
Internal commitment – religiousness	0.46 ± 0.090	0.65 ±0.128	0.25 ± 0.086	291.48; 0.0001; .705	0.0001	0.0001	0.0001
Internal commitment	0.50 ± 0.085	0.69 ±0.093	0.28 ± 0.103	368.42; 0.0001; .751	0.0001	0.0001	0.0001
Internal control	27.70 ± 4.557	28.76 ±3.586	27.00 ± 4.408	3.34; 0.037; .027	ns	ns	0.029
Powerful others	15.89 ± 4.924	18.27 ±4.491	15.60 ± 4.852	7.27; 0.001; .056	0.004	ns	0.002
Chance	15.54 ± 4.992	17.49 ± 5.233	17.63 ± 4.905	4.69; 0.010; .037	0.035	0.020	ns

Discussion

Research results show relatively weak relationships between religious commitment and HLC. Correlations run for the whole group show that religious commitment is the most connected with beliefs on the powerful others' impact on health. Strong beliefs on powerful others influencing health of an individual indicated external HLC, which in our research was weakly correlated with general religious commitment. This result supports conclusions from previous research which claimed that strong religiousness may increase external locus of control because of the emphasis on God's will as a factor beyond human control [31]. However, our research results did not confirm some previously reported negative relationships between locus of control and religiousness [30]. We have found positive correlations between internal HLC and expressing religiousness through prayer and orientation to other people. This result is consistent with results of some previous research [32]. Lack of significant relationships between religiousness and location of control also complies with earlier research of Cheever et al. [33]. Yet one should keep in mind that previous research reported above focused on generalized locus of control. The only research on relationships between religiousness and HLC we are aware of [34, 35] brought ambiguous results: a positive correlation between internal HLC and prayer and a negative correlation between internal HLC and subjective religiousness. Similarly ambiguous relationships were recorded in our research: strong religious commitment is correlated with both internal and external HLC.

Some information on relationships between religious commitment and HLC comes from the comparison of students from three constructed concentration groups. The second concentration included individuals the most committed to religion and the strongest belief in powerful others' impact on health. They also believed more in the play of chance than moderately religious students and in the role of internal control in comparison to the least religious students. We may therefore conclude that strong religious commitment is correlated with external HLC and supports beliefs that the state of individual health depends mainly on action of powerful others, mainly health service staff.

The least and the most religiously involved students have a similar perception on the role of chance. The first ones are less convinced that their health depends on their action and attitudes and that it depends on powerful others. Moderate religiousness, on the other hand, seems to reduce the role of external factors (the role of powerful others and a play of chance). Results of concentrations analysis confirm positive correlations between religiousness and external locus of control [31].

The second concentration of J. Pilsudski University of Physical Education students included the most religiously committed respondents. They were mainly female students and their involvement profile was similar to the first concentration obtained by Golan [39]. Moderately religious students from the first concentration are similar to the fourth concentration of Golan [39] with students of average stores on the RCS scale. The third concentration of the least religious students of J. Pilsudski University of Physical Education is similar to Golan's [39] concentration three. The only concentration from his research that could not be matched with J. Pilsudski University of Physical Education students included strongly intrinsically committed individuals (mainly men).

Our research results confirm gender as a factor affecting the level of religiousness. In the second concentration of students representing strong religious commitment, there were significantly more women, and in the third, the least committed, concentration, there were significantly more men. This complies with results of extensive previous research showing stronger religiousness of female students [10, 36, 37, 38, 39].

Results of previous research suggest that gender may moderately influence relationships between religiousness and locus of control [31] and relationships between internal religious motivation, frequency of prayer and religious means of dealing with stress and life satisfaction [42]. In our research many more correlations were observed for religious commitment and HLC with the group of male students. Religious involvement is positively correlated with both the belief in internal control over own health and the belief in the role of powerful others (external control). Strong internal religious commitment is positively correlated with internal control and the belief in the role of powerful others. External orientation to others is correlated only with the belief in the impact of powerful others. No correlations between religious commitment and internal locus of control were observed among female students. Our research results contradict conclusions formulated in the research of Fiori et al. [31], who claimed that among women, religiousness may be correlated with both external and internal locus of control, while among men – only with external locus of control. This proves the need of a separate analysis for both genders and further research on male and female locus of control and religiousness.

All three concentrations in our research had a similar distribution of students from the three analyzed study faculties: physical education, tourism and recreation and physiotherapy. Earlier research on Polish students showed that religiousness varied depending on the study faculty [43, 44, 45]. This observation concerned distinctively different faculties (humanistic and social studies versus technical and biological studies). We analyzed students of three faculties from the same University. All faculties were somehow related to physical activity, the group was quite homogeneous and no significant differences on religiousness were noted.

Study faculty did differentiate correlations between religious commitment and HLC. The highest number of correlations (weak) were observed among PE students and the lowest one among tourism and recreation students. At the moment we do not know the reason for these differences and this would require additional investigation.

Conclusion

The research presented in this article should be considered a reconnaissance of the problem. So far, we have not encountered literature reports on relationships between religiousness and students HLC. But seeking such relationships is fully justified by theoretical premises and previous research confirming the existing correlations between religiousness and general locus of control as well as between religiousness and health-related behaviors determined by HLC. The research is limited by sample design and the fact of investigating students from quite similar study faculties. We are not able to generalize research results and relationships between investigated variables and study faculty remains unexplained. Based on our results, we may yet claim that correlations between religious commitment and HLC in the group of physical culture sciences students are quite weak and ambiguous. Strong religious commitment seems to facilitate beliefs on health depending on external factors (powerful others) and that the state of health is controlled by an individual. These issues require further research.

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