RELIGIOSITY, PREDICTOR OF DISEASE RISK OR WELL-BEING? RELATIONSHIP WITH RELIGIOUS SOCIAL IDENTITY.

ABSTRACT OF THESIS BY GHEORGHE HUZA

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ABSTRACT

Religiosity, predictor of disease risk or well-being?

Relationship with religious social identity.

Disease risk is defined as "the chance or likelihood that an undesirable event will occur, as a result of use or nonuse, incidence, or influence of a chemical, phisical, or biologic agent especially during a stated period; the probability of developing a given disease over a specified time period" (*Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, Seventh Edition*, 2003). Health and wellbeing are affected by many factors – those linked to poor health, disability, disease or death, are known as risk factors. Risk factors coexist and interact with one another (https://www.eupati.eu/pharmacoepidemiology/risk-factors-health-disease/.) Understanding the causes of behavioural risk factors (age, gender, educational level, income, religion) behind diseases, we can take part in the prevention and treatment programmes.

The first study proposes a general measure of religiosity applicable to all religious confessions in Romania. The second study examines whether religiosity and religious social identity contributes to Romanian people's attitude towards vaccines, as well as the indirect pathways by which religiosity may linked to religious social identity and attitude towards vaccines. The third study develops a model for optimizing associations between socio-demographic variables, illness cognition and medication adherence. The fourth study examines whether religious attachment, religiosity and procedural and distributive justice beliefs for self contribute to the young Romanians well-being, as well as the indirect pathways by which procedural and distributive justice beliefs for self may linked to religious attachment, religious attachment,

The four cross-sectional analysis were performed on data from surveys, administered to four convenience samples. The first analysis was performed on data from surveys on religiosity, administered to a sample of religious and high-religious people with age ranging from 14-51 years. The second analysis was performed on data from surveys on religiosity, religious social identity and attitude towards vaccines, administered to a sample of Romanian people with age ranging from 16-62 years. The third analysis was performed on data from

surveys on religiosity, illness cognitions and medication adherence, administered to a sample of people with chronic illness with age ranging from 18-86 years. The fourth analysis was performed on data from surveys on religiosity, religious attachment, procedural and distributive justice beliefs for self and psychological well-being, administered to a sample of young Romanians with age ranging from 16-19 years.

Confirmatory Factor Analysis (CFA), Structural Equations Models, Canonical Correlation Analysis (CCA) were used to examine the fit of the scales and relationships between study variables.

In the first study, results revealed that the Romanian Version of The Centrality of Religiosity Scale (CRS 15) is a valid and reliable measure in detecting the centrality of religiosity. The second study confirms that Vaccination Attitudes Examination (VAX) Scale is a valid and reliable measure in detecting the vaccine-hesitant Romanian people. We found significantly negative indirect effects of attachment on mistrust of vaccine benefit, worries over unforeseen future effects, concerns about commercial profiteering and preference for natural immunity and significantly positive indirect effects of glorification and centrality of religiosity. The results of the study showed that the relationship between religious social identity and the attitude towards vaccines is mediated by religiosity. In the third study, results revealed two canonical functions that indicated that: (1) low age, high income, and a high level of religious information are associated with a low level of negative consequences of illness felt in everyday life, with a high level of ability to manage the negative consequences of the disease and with a low medication adherence and (2) high income, low participation in public religious activities, a low frequency of personal prayer, and minimal religious experiences are associated with low perceived benefits of long-term illness and a low medication adherence. In the fourth study, results revealed that procedural and distributive justice beliefs for self is a significant mediator on the relationship between religious social identity, religiosity and psychological well-being.

These findings highlight the importance of religiosity and religious social identity in vaccination attitudes, medication adherence and psychological well-being.

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PREAMBLE

Without questioning the effectiveness of care programs among Romanians, the results of current studies propose to widen the area of health risk factors by identifying associations between religious social identity and religiosity with attitudes towards immunization vaccines and adherence to medication. It also identifies the link between religious social identity, religiosity and well-being among young people. While literature indicates links of religious social identity and religiosity with social support, promoting a healthy lifestyle and coping in difficult life situations, Romanians are less aware of the link between these and their attitude towards vaccines, medication adherence and psychological well-being.

The studies seek to address these gaps by determining whether religious social identity and religiosity contribute to Romanians' attitude towards vaccines, medication adherence and psychological well-being.

This dissertation is organized around four studies. Each chapter presents a study that includes a review of the literature and describing the study setting, the study data, the measurements, the analysis by aim, the method, the results and the discussions. Chapter 1 describes the conceptual model that guides all researches. Chapter 2 examines whether religiosity and religious social identity contribute to Romanian people's attitude towards vaccines, as well as the indirect pathways by which religiosity may be linked to religious social identity and attitude towards vaccines. Chapter 3 describes the model for optimizing associations between socio-demographic variables, illness cognition and medication adherence. Chapter 4 examines whether religious attachment, religiosity and procedural and distributive justice beliefs for self contribute to the young Romanians' well-being, as well as the indirect pathways by which procedural and distributive justice beliefs for self contribute to the young Romanians' well-being, as well as the indirect pathways by which procedural and distributive justice beliefs for self may be linked to religious attachment, religiosity and well-being. Chapter 5 summarizes the major findings of the studies and discusses their implications.

ABBREVIATIONS

CRS15	The Centrality Religiosity Scale
CACR	The Religious Belief Assesment Questionnaire
CACM	The Moral Behavior Assessment Questionnaire
CACR_IN	The Intimate Religious Belief Assessment Questionnaire
CACR_EX	The Expresive Religious Belief Assessment Questionnaire
CACM_CR	Specifically Christian Moral Behavior
CACM_G	General Moral Behavior
INT	Intellect
IDE	Ideology
PPB	Public Practice
PPR	Private Practice
REX	Religious Experience
VAX	Vaccination Attitudes Examination Scale
PGS	General Health Perception Scale
PSM	Perceived Sensitivityto Medicines Scale
MVB	Trust/mistrust of Vaccine Benefit
WFE	Worries over Unforeseen Future Effects
ССР	Concerns about Commercial Profiteering
PIN	Preference for Natural Immunity
AVC_T	Attitudes toward Vaccination Qestionnaire
АТСН	Attachment
GLOR	Glorification
ICQ	Illness Cognition Questionnaire
HPL	Helplesness
ACC	Acceptance
PBN	Perceived Benefits
DAI	Drug Attitude Inventory
PWB	Psychological Well-Being
PJBS	Procedural Justice Beliefs for Self
DJBS	Distributive Justice Beliefs for Self
PDJBS	Procedural and Distributive Justice beliefs for Self

GENERAL AIMS AND SPECIFIC RESEARCH QUESTIONS

GENERAL AIMS

The general aims of this thesis were: (1) to identify and validate a general measure of religiosity that can be used in Romania for both the Orthodox majority population and other religious confessions and (2) to explore the association between religiosity and religious social identity with the attitude towards vaccines, the medication attitude and psychological well-being.

SPECIFIC RESEARCH QUESTIONS

- What is the most appropriate measure of religiosity that is the expression of the individual's perspective? (Study 1)
- Can the identified measure be applied to any religious confession? (Study 1)
- What is the most appropriate tool that asses general attitudes toward vaccines? (Study 2)
- Do different religious confessions report different levels of attitude towards vaccines? (Study 2)
- What is the effect of religiosity on the relationship between religious social identity and the attitude towards vaccines (Study 2)
- Is there an association between religiosity and cognitive assessment of the disease? (Study 3)
- Is there an association between religiosity and medication adherence? (Study 3)
- Is there an effect of religious attachment and religiosity on the well-being of young people? (Study 4)
- Under what conditions do we find a mediated effect of religious attachment and religiosity? (Study 4)

Chapter 1: The Psychometric Properties of a Romanian Version of

The Centrality of Religiosity Scale (CRS 15)*

1.Objectives.

The first objective of the study was to identified a measure of religiosity appropriate to the preeminent religious confessions in Romania. The second objective was to validate the identified measure and determine its psychometric properties in religious and highreligious people.

2.The teoretical model of the study.

Since the measures developed by the many researchers are specific to different religious cultures, we searched a measure with a character of universality. We found that The Centrality of Religiosity Scale (CRS 15) is an appropriate measure of the purpose of this research. Developed by Huber and Huber (2012), The Centrality of Religiosity Scale (CRS 15) is a measure of the centrality, importance or prominence of religiosity in personality. Well designed and clearly operationalized, the CRS 15 scale combines Allport's intrinsic religiosity with Glock's idea of distinct expressions of religious life (Zwingmann et al., 2011). Starting from the content identified in Glock's multidimensional model, which involves a religious-centred approach on social expectations Huber and Huber (2012) redefines the contents of the five dimensions, giving them a psychological perspective. This approach is made from the perspective of personality psychology inspired by Allport's ideas and Kelly's personal constructs psychology (Zwingmann et al., 2011). Kelly proposed that people organize their experiences by developing bipolar dimensions of meaning or personal constructs. Interconnected hierarchical constructs are used to anticipate and predict how the world and its inhabitants behave, and how people can organize their psychological experience. Moreover, they can continuously test their personal constructs by watching how well they predict the circumstances of life and review them when they are considered deficient (Raskin, 2002). Kelly's phenomenological and constructivist model emphasizes the individual's personal perspective.

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His fundamental postulate is that personal experience and behaviour radically depend on

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the construction of reality. Within this framework, religious beliefs are considered specific ways of building reality (Huber 2007). The model of the centrality of religiosity distinguishes between the centrality of the religious system construct in all constructspersonal system and the religious contents within the construct-religious system (Huber, 2009). Huber et al., (2011) postulate that the more centrally the religious construct system is positioned, the more intensive its influence will be on other personal construct systems and thus on that person'experience and behaviour. Approaching a person's world and life from a religious point of view makes it possible to build a system of legitimate and coherent meanings according to which life events are interpreted (Krok, 2017). The scale construction strategy is based on two prerequisites. The first concerns the question of representativeness which presupposes the existence of those expressions of representative religiosity for the total of religious life. The second relates to the generalizability of the religious content targeted by the indicators, condition of which the identified contents must be significant and acceptable in most religious traditions (Huber and Huber, 2012). The reconfigured content of the dimensions gave the scale a character of universality. Thus, the intellectual dimension refers to themes of interest, hermeneutical skills, styles of thought and interpretation as bodies of knowledge. The ideological dimension includes beliefs, unquestionable convictions and patterns of plausibility. The dimension of public practice refers to patterns of action and sense of belonging to a particular social organism as well as to a certain ritualized imagination of transcendence. The private practice includes action patterns and a personal style of devotion to transcendence, and the dimension of religious experience represented as patterns of religious perceptions and as a body of religious experiences and feelings. Based on the scores, the scale makes distinctions between non-religious, religious, and high- religious groups (Huber and Huber, 2012). Thus, in the high religious group, the religious system occupies a central position in personality; from this position religious content exerts strong influence over other psychological systems. As a consequence, the non-religious fields of experience and action often appear in a religious light. In the religious group, the religious system occupies a subordinate position in personality. From this position, the influence on other psychological systems is weak; as a consequence non- religious fields of experience and action appear rarely in a religious light. In the non-religious group, the religious system occupies a marginal position. Religious content and practices hardly appear in the life of the individual. It is assumed that the religious meanings of these individuals have an ad hoc character and are formed on the basis of other personal constructs (Huber et al., 2011). The centrality of the system of religious meanings indicates its relevance in an individual's cognitive and emotional system, without reference to the specificity of its meaning (Dezutter et al., 2010). Huber's Centrality of Religiosity was used in different countries in many studies (Batara, 2015; Czyżowska and Mikołajewska, 2017; Hassan et al., 2016). The aim of the study was to adapt the Centrality of Religiosity Scale (CRS 15), determine its reliability and validity, and verify the adequacy of the adapted version of the five- dimensional scale.

3. Methods

3.1 Sample and Design

A total of 215 participants (63 males, 143 females, 9 gender not specified) with ages ranging from 14- 51 years (mean = 19.45, SD = 6.75), were recruted from general people of various religious confessions of different regions of Romania. The sample consists of 146 (67,9%) Orthodox, 58 (27%) Seventh-day Adventists, 3 (1,4%) Catholics, 1 (0,5%) Pentecostals, 7 (3,35%) others.

3.2 Measures

The Centrality of Religiosity Scale (CRS 15)

The English version of The Centrality of Religiosity Scale (CRS 15), was translated into Romanian using the forward-backward translation design and following the guidelines provided by the literature (Beaton et al., 2000; Dunn et al., 1994). The Romanian version of the scale is derived from the English version and was validated by the author. The scale consists of 15 items divided in five subscales: intellect, ideology, public practice, private practice and religious experience. Each subscale contained three items that measure the objective or subjective frequency or the intensity of personal religious constructs. The answers were measured by five-point Likert scale, with the exception of certain items that have a different coding system. The subscale results are the average of the items. The total result (CRS 15) is the sum of the subscale's results. For the present sample, the Cronbach alpha for the CRS 15 was 0,93. For the subscales, Cronbach alpha were as follows: 0.796 for Intellect (mean = 3.20; SD = 0.96), 0.611 for Ideology (mean = 4.12; SD = 0.90), 0.824 for Public Practice (mean = 3.64; SD = 1.16), 0.853 for Private Practice (mean = 3.96; SD = 1.11) and 0.866 for Religious Experience (mean = 3.44; SD = 1.13). The items of the Romanian version are presented in Table 2.

The Religious Belief Assessment Questionnaire (CACR)

The Religious Belief Assessment Questionnaire was developed by Cucoş and Labăr (2008) to measure religious belief. The scale consists of 14 items divided in two subscales. First subscale (CACR_IN) consists of 9 items and measures intimate religious belief. The second subscale (CACR_EX) consists of 5 items and measures expressive religious belief. The measurement is done via six-point Likert scale (1- not at all true; 6 – true to a great extent). The total result of each subscale is the sum of the items. For the present sample, Cronbach alpha for intimate religious belief was 0.98 (mean = 42.66; SD = 13.43) and 0.90 (mean = 21.74; SD = 16,63) for expressive religious belief.

The Moral Behavior Assessment Questionnaire (CACM)

The Moral Behavior Assessment Questionnaire (CACM) was developed by Cucoş and Labăr (2008) to measure moral behavior. The scale consists of 14 items divided in two subscales. First subscale (CACM_CR) consists of 8 items and measures specifically Christian moral behavior. The second subscale (CACM_G) consists of 6 items and measures general moral behavior. The measurement was done on six-pint Likert scale (1-not at all true; 6 – true to a great extent). The total result of each subscale is the sum of the items. For the present sample, Cronbach's alpha for specifically Christian moral behavior was 0.83 (mean = 37.89; SD = 6,61) and 0.83 (mean = 29.22; SD = 4.97) for general moral behavior.

3.3 Statistical Analysis

We used:

• Confirmatory factor analysis (CFA) with SPSS v.20 in order to examine the fit of the CRS 15

• Spearman correlation calculations between the scores of the CRS 15 and the scores of CACR_IN and CACR_EX for examined convergent validity

• The Receiver Operating Characteristics (ROC) and method of known groups to examine the discriminative validity

• A Mann-Whitney test was conducted to evaluate the possible differences between groups.

4. Results

4.1. Confirmatory Analysis

For testing the fit of CRS scale, we conducted a confirmatory analysis with Amos 20.0. The results revealed a satisfactory fit of structural model: CMIN/DF = 2,502; p = .000;

RMSEA = .084 [.069; .098]; TLI = .921; CFI = .94.

4.2. Reliability and Validity

The scale's reliability analysis revealed an overall Cronbach's alpha of 0.93. Convergent validity was supported by a significant correlation (0.83**) between the CRS 15 total score and CACR_IN total score and a significant correlation (0.76**) between CRS 15 total score and CACR_EX total score. We also tested the alternative validation methods proposed by Huber and Huber (2012). The first shows that individuals with a high score, had a more central religious construct system. This strategy was empirically tested by the high correlation between CRS total score and self reports of the salience of religious identity (I consider myself a religious person). There is also a high correlation between CRS total score and self reports of the importance of religion for daily life (Christian teachings help me in everyday life). The results of this strategy are depicted in Table 3.

Factor	CACR_IN	CACR_EX	CACR10	CACR13	
CRS_T	.83**	.76**	.72**	.66**	
INT	.59**	.63**	.61**	.50**	
IDE	.50**	.37**	.33**	.32**	
PPB	.72**	.71**	.70**	.60**	
PPR	.76**	.68**	.63**	.62**	
REX	.74**	.66**	.60**	.59**	

Table 3. Convergent validity

CRS_T - total score CRS 15; INT - total score Intellectual; IDE – total score Ideology; PPB – total score Public Practice; PPR – total score Private Practice; REX – total score Religious experience; CACR_IN – total score Intimate religious belief; CACR_EX – total score Expressive religious belief; CACR10 item (I consider myself a religious person); CACR13 – item (Christian teachings help me in everyday life); ** p < .01.

The second strategy consists in the test of differential prediction assuming that in the highly religious group the system of personal religious constructs would be much more differentiated than that of the religious group and that the religious contents (e.g., the experience of forgiveness by God) would have much stronger relevance for general psychological disposition (e.g., the willingness to forgive others in social situations) than in the religious group. We tested that strategy with Mann-Whitney test. Table 4 depicts the results.

Factor	Group	N	Mean rank	U	Z
CRS_T	religious	113	57	.00	- 12.16**
	high- religious	88	157		
CACR 10	religious	113	72.71	1775.00	- 8.07**
	high - religious	88	137.33		
CACR 13	religious	113	78.84	2468.00	- 6.25**
	high- religious	88	129.74		
CACR 3	religious	113	78.62	2442.00	- 6.76**
	high - religious	88	129.74		
CACM 1	religious	113	86.48	3331.00	- 4.20**
	high- religious	88	119.65		
CACM 10	religious	113	93.06	4075.00	- 2.26*
	high - religious	88	111.19		

Table 4. Discriminative validity

CRS_T- total score CRS15, CACR10- item of Intimate religious belief (Christian teachings help me in everyday life), CACR13- item of Expressive religious belief (I consider myself a religious person), CACR3- item of Intimate religious belief (I ask God forgiveness when I make mistakes or sin), CACM1- item of CACM (When someone asks me for forgiveness, I forgive him), CACM10- item of CACM (I hurry to ask forgiveness when I hurt someone). ** p < .001, * p < .05.

For the categorization of the groups, Huber and Huber, (2012) proposes three scores: 1.0 to 2.0 not religious; 2.1 to 3.9: religious and 4.0 to 5.0: highly religious. We have used this categorization to determine the power of discrimination of the scale, using ROC curve analysis. In practice the area under curve is used when we want to see if a measure has predictive value (Fawcett, 2006). Table 5 and Figure 2 depict the results of analysis.

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Scale	Area	Sensitivity	1-specificity	Cut-point			
CRS_T	1.00*	1.00	.000	3.9667			
CACR_IN	.870*	.773	.186	50.5			
CACR_EX	.838*	.750	.224	24.5			

Table 5. Area under curve, sensitivity and scale specificity

CRS_T total score CRS15; CACR_IN- total score Intimate religious belief ; CACR_EX- total score Expressive religious belief, * p < .001



Figure 2. Area under curve for CRS 15, CACR_IN, CACR_EX

5. Discussion and Conclusion

5.1. Discussion

The aim of the present study was to test the psychometric properties of the Romanian version of The Centrality of Religiosity Scale (CRS 15) in a sample of different religious confessions. This scale has not been used in Romania before. In his studies, Huber and Huber (2012), found a useable reliability for the CRS 15 (0.92-0.96). Our study showed a highly acceptable Cronbach's alpha of 0.93. Other studies found similar psychometric properties of CRS (Zarzycka and Rydz, 2014; Krok, 2015). A significant correlation between the Romanian version of CRS 15 total score and the two subscales of Religious Belief Assessment Questionnaire (intimate and expressive religious belief) has indicated high convergent validity. The results of the alternative validation methods proposed by Huber and Huber (2012) showed good discriminative validity of the scale. These results have been confirmed by the ROC Curve Analysis which revealed a high sensitivity and specificity. The confirmatory analysis showed a satisfactory fit of the Romanian version of CRS 15. The present study, however, has several limitations. A first limitation was item 7, which led to unclear interpretations by the respondents. This study was conducted with a relatively small sample (n = 215). Some religious confessions were poorly represented and the respondents were recruited only from two areas of Romania.

5.2. Conclusion

The Romanian version of CRS 15 showed high reliability and good convergent and discriminative validity. The acceptable fit and high sensitivity and specificity of the scale are recommendations for its use in detecting the centrality of religiosity. The scale can be

used in Romania for both the Orthodox majority population and other religious confessions.

Chapter 2 a: The Psychometric Properties of a Romanian Version of the

Vaccination Attitudes Examination (VAX) Scale

1.Objective.

The objective of the study was to identified a general measure that detect the vaccinehesitant people and to validate it and determine its psychometric properties in Romanian people.

2. The teoretical model of the study.

In this study we propose a measure of attitudes to vaccines appropriate to the all social categories of general population. Many instruments address the attitudes toward different types of vaccines Many of these measures are specific to the certain age groups and address parental attitudes (Brabin, Roberts, Farzaneh and Kitchener, 2006; McRee et al., 2010; Opel et al., 2011). Many of these measures are specific to the certain age groups and address parental attitudes. Developed by Martin and Petrie (2017), the Vaccination Attitudes Examination (VAX) Scale is a tool that asses general attitudes toward vaccines. The scale construction strategy was based on the identification of the anti-vaccination attitudes that predict vaccine benefit, (2) worries over unforeseen future effects, (3) concerns about commercial profiteering and (4) preference for natural immunity. All four factors cover an extensive area of anti-vaccination attitudes and give the VAX scale a high and efficient degree for identifying those with vaccination resistance.

3. Methods

3.1. Sample and Design

A total of 405 participants (124 males, 259 females, 22 gender not specified) with ages ranging from 16 to 62 years (mean = 24.99, SD = 11.80), were recruted from general people of various social categories of different regions of Romania. Sampling was based on convenience. Sociodemographic data included age, gender, residential environment, educational level, marital status, and religious confession.

3.2. Measures

2.2.1. The Vaccination Attitudes Examination (VAX) Scale

The Romanian version of the scale is derived from the English version (Martin et al., 2017) and it was validated with the author's agreement. The scale consists of 12 items divided in four subscales: trust/mistrust of vaccine benefit, worries over unforeseen future effects,

concerns about commercial profiteering and preference for natural immunity. The measurement is done by seven levels of Likert scale (1-strongly disagree; 7-strongly agree). For the present sample, the Cronbach alpha for the VAX was 0,82 (mean = 3.64; SD = .72). For the subscales, Cronbach alpha were as follows: 0.86 for Mistrust of vaccine benefit (mean = 3.34; SD = 1.17), 0.71 for Worries over unforeseen future effects (mean = 4.17; SD = 0.93), 0.83 for Concerns about commercial profiteering (M = 3.47; SD = 1.09) and 0.71 for Preference for natural immunity (mean = 3.59; SD = 0.97). Higher scores reflect stronger anti-vaccination attitudes.

2.2.2. Attitudes Toward Vaccination Questionnaire (Busse, Kulkarni, Campbell, and Injeyan, 2002) consists of 11 items. The measurement is done by three levels of Likert scale (0- disagree; 1- unsure; 2- agree). The total score ranging from 0 (most negative attitude toward vaccination) to 22 (most positive attitude toward vaccination). For the present sample, the Cronbach alpha for the Attitudes Toward Vaccination Questionnaire was 0.79 (mean = 13.90; SD = 4.46).

2.2.3. The general health perception (PGS) was measured with a single item by the General Health Perceptions Scale (Ware and Sherbourne, 1992):"In general, would you say your health is." Respondents indicated their agreement of the item, on a 5-point scale (1-poor, 2-fair, 3-good, 4-very good, 5-excellent). For the present sample, respondents indicated low score (mean = 3.92; SD = 0.68).

2.2.4. The perceived sensitivity to medicines was measured with a single item of the Perceived Sensitivity to Medicines Scale (Horne et al., 2013): "My body is very sensitive to medicines" on a six levels of Likert scale (1-strongly disagree; 6-strongly agree). Higher scores of perceived sensitivity to medicines correlate with higher symptom reporting (Martin et al., 2017, citing the Fasse et al., 2013). In our study the respondents indicated low score (mean = 2.79; SD = 1.27)

3.3. Statistical Analysis

We used:

• Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA)

with SPSS v.20 in order to examine the matrix structure and the fit of the VAX scale.

- Spearman correlation calculations between the scores of the VAX and the scores
 - of Attitudes Toward Vaccination Questionnaire to examine convergent validity.

• Kruskal-Wallis test and Mann-Whitney test to identify possible differences between groups.

Results

Kruskal-Wallis test and Mann-Whitney test indicated significantly statistical differences by the age categories and by the religious confessions (see Table 1).

Factor	Group	Ν	Mean rank	H(2)
	16-30	296	212.06	
VAX_T	31-45	67	158.19	12.18**
	46-62	38	190.37	
	Orthodox	150	168.63	
VAX_T	Pentecostals	145	209.80	20.77**
	Adventists	105	233.19	

Table 1. Kruskal-Wallis comparisons.

Note: VAX_T- total score to VAX scale; ** p < .01.

People with age 16-30 year old indicate the higher score to VAX scale toward people with age 31-45. We found significant statistical differences between Orthodox and Pentecostals and between Orthodox and Seventh-day Adventists (see Table 2).

	v 1					
Factor	Group	Ν	Mean rank	U	Z	
VAX_T	16-30	296	190.89	7185.50	-3.40**	
	31-45	67	142.74			
VAX_T	Orthodox	150	132.64	8491.00	-3.26**	
	Pentecostals	145	164.44			
VAX_T	Orthodox	150	112.02	5478.50	-4.14**	
	Adventists	105	150.82			

Table 2. Mann-Whitney comparisons.

Note: VAX_T- total score to VAX scale; ** p < .01.

3.4. Reliability and Validity

The scale's reliability analysis revealed an overall Cronbach's alpha of 0.82. Convergent validity was supported by a significant correlation (-.62**) between the VAX total score and the Attitudes Toward Vaccination Questionnaire total score (see Table 3). The VAX total score poorly correlates with SPM and PGS.

0			
Factor	AVC_T	SPM	PGS
VAX_T	62**	.14**	.12*
MVB	45**	.02	.05
WFE	32**	.07	.06
ССР	52**	.13*	.04
PNI	36**	.16**	.20**

Table 5. Convergent validity

Note: VAX_T- total score to VAX scale; MVB- total score to Mistrust of vaccine benefit; WFE- total score to Worries over unforeseen future effects; CCP- total score to Concerns about commercial profiteering; PNI- total score to Preference for natural immunity; AVC_T- total score to Attitudes Toward Vaccination Questionnaire; SPM- item: "My body is very sensitive to medicines"; PGS- item: "In general, would you say your health is"; ** p < .01; * p < .05.

Discriminative validity of VAX scale was tested by the method of known groups. The results are depicted in Table 6.

Factor	Group	Ν	Mean rank	U	Ζ
VAX_T	In disagree with infants' vaccines	70	189.11	3737.50	-6.06**
	In agree with infants' vaccines	207	122.06		
VAX_T	Opposite of vaccination	64	221.10	2521.50	-8.00**
_	In favour of vaccination	228	125.56		

Table 6. Mann-Whitney comparisons

Note: VAX_T- total score of VAX scale; ** p < .01.

Based on the answer of the two items of Attitudes Toward Vaccination Questionnaire: "Vaccines should never be given to infants under 1 year of age " and "You are in favor of vaccination in general?" we divided the respondents into two groups. Those that were in favor of the vaccination in general and those that agreed the vaccination to infants under 1 year of age, have indicated a significant low score to VAX scale toward those who indicated the opposite answers.

3.5. Confirmatory Analysis

For testing the fit of VAX scale, we conducted a confirmatory analysis(CFA) with Amos 20.0. The results revealed a good fit of the structural model: CMIN/DF = 2,992; p = 0.000; RMSEA = 0.070 [0.057; 0.084]; NFI = 0.926; TLI = 0.93; CFI = 0.949.

4. Discussion and Conclusionss

4.1 Discussion

The aim of the present study was to test the psychometric properties of the Romanian version of the Vaccination Attitudes Examination (VAX) Scale in a sample of different social categories on Romanian people. This scale has not been used in Romania before. In their study, Martin et al. (2017) found a good reliability for the VAX scale 0.84 (0.86- 0.92 for subscales). Our study showed good Cronbach's alpha of 0.82 (0.71-0.86 for subscales).

The Romanian version of the VAX scale maintains the four factors of the original version. The Romanian version of the VAX scale is related to age categories and religious confessions. The age group 16-30 year old, Pentecostals and Seventh-day Adventists reported a higher score of the VAX scale, but also a higher level of general perception of health. A significant correlation between the Romanian version of VAX total score and the Attitudes Toward Vaccination Questionnaire has indicated a high convergent validity. The method of known groups revealed a good discriminative validity. The confirmatory analysis showed a good fit of the Romanian version of VAX scale. The present study has several limitations. A first limitation refers to the convenience sample that does not use the random sampling. This study was conducted with a relative sample (n = 405). Some social categories were poorly represented and the respondents were recruited only from four areas of Romania.

4.2 Conclusion

The Romanian version of VAX scale showed a high reliability and a good discriminative and convergent validity. The good fit of the scale recommend its use in detecting the vaccinehesitant Romanian people.

Chapter 2 b: An overview of the effects of religious social identity

and religiosity on attitudes to immunization vaccines in Romanian people.

1.Objective:

The aim of this study was to explore the level of the attitude towards immunization vaccines in three religious Romanian confessions and to investigate the impact of the constructivist-phenomenological operationalization of religiosity on the relationship between religious social identity and attitude towards vaccines, among religious and high-religious people.

2. Theoretical considerations:

Religiosity. Defined in terms of an individual religious orientation, namely, intrinsic and extrinsic, religiosity might be explained by the marked cognitive and emotional value that the religious group membership provides (Ysseldyk, Matheson and Anisman, 2010). Religiosity encompasses all preferences, emotions, beliefs and individual actions that refer to an existing religion. While religion is a cultural phenomenon, religiosity is an individual phenomenon (Aukst-Margetić and Margetić, 2005). The inner experience of religion, with what it means for every individual, is an important causal factor in developing a tolerant perspective on life or one perspective that is contaminated by prejudices (Allport and Ross, 1967). Given its prevalence and importance in community life, taking into account the impact of religious beliefs, traditions and practices on physical and mental health can clarify some contradictory positions (Aukst-Margetić et al., 2013).

Religious social identity. A religious identity is relevant if the identification process is linked either to the content or to the structure of a Transcendent Person (Ganzevoort, 1998). Religious identification can provide a robust social support system, a comforting and compelling worldview, and a unique psychological enrichment. Taking into account different religious ideologies could reveal important differences in both individuals and intergroup processes (Ysseldyk, Matheson and Anisman, 2010). Conceptually, the most significant contribution of a spiritual perspective is the view that spiritual experiences make the difference in behaviour. Divine intelligence can influence the identity and lifestyle of human beings (Bergin, 1991).

Attitude to vaccines. Attitude to vaccines include beliefs about the objective barriers to immunization: protection, medical contraindications, natural immunity, safety concerns, distrust (Prislin, Dyei, Blakely and Johnson, 1998).

Links between religious identity, religiosity and attitudes towards vaccines. On the rural parents' decision making to vaccinate their children against human papillomavirus (HPV), the

religiosity and spirituality influenced their attitudes towards HPV vaccination (Thomas, Blumling and Delaney, 2015). In a study that aimed to estimate the prevalence, and sociocultural determinants of childhood vaccine refusal and hesitancy intentions among adults, religiosity and the use of alternative medicine increased the odds of vaccine refusal intentions (Repalust, Šević, Rihtar and Štulhofer, 2017). Exploring various factors that could influence parents' decisions about vaccinating their children in specific population groups, higher compliance rates were reported among participants with a greater level of religiosity (Elran et al., 2018).

3. Hypothesis.

- 1. Confessional membership expressed to different levels of the religious social identification, the religiosity and attitude towards vaccines.
- 2. The level of religiosity affect the general health perception.
- 3. The relationship between the religious social identity, general health perception and the attitude toward vaccines is mediated by religiosity.

4. Methods

4.1. Participants

A total of 421 participants (129 males, 268 females, 24 gender not specified) with ages ranging from 16-62 years (mean = 25.17, SD = 11.89), were recruited from general people of various religious confessions of different regions of Romania. Sampling was based on convenience. Socio-demographic data included age, gender, educational level, marital status, religious confession.

4.2. Measures

2.2.1. The general health perception (PGS) was measured with a single item: "In general, would you say your health is" of the MOS 36 scale (Ware and Sherbourne, 1992). Respondents indicated their agreement of the item, on a 5-point scale (1-poor, 2-fair, 3-good, 4-very good, 5-excellent).

2.2.2. Religious identification was assessed by Modes of Religious Identification, version adapted after Modes of National Identification (Roccas, Klar and Liviatan, 2006). We adopted the scale used by Berndsen, Thomas, McGarty, Bliuc, and Hendreş (2017). Five items measured glorification and five items measured attachment. Respondents indicated their agreement of the items on a 7-point scale (1-strongly disagree; 7-strongly agree). For the present sample, the Cronbach alpha for Glorification subscale is 0.87 (mean = 4.66; SD =

1.42) and 0.93 for Attachment subscale (mean = 5.19; SD = 1.54). In order to verify the factorial validity of the dimensions, we used confirmatory factor analysis (CFA). The model fit results were: $\chi^2/df = 3.53$; p = 0.00; NFI = 0.97; TLI = 0.97; CFI = 0.98, RMSEA = 0.08, 90% CI [0.06, 0.09].

2.2.3. To assess religiosity, The Romanian version of Centrality of Religiosity Scale (CRS 15) was administered (Gheorghe, 2019). For the present sample, the Cronbach alpha for the CRS 15 (mean = 4.00; SD = 0.82) was 0,94. For the subscales, Cronbach alpha were as follows: 0.77 for Intellect (mean = 3.51; SD = 0.95), 0.74 for Ideology (mean = 4.49; SD = 0.84), 0.90 for Public Practice (mean = 4.08; SD = 1.16), 0.85 for Private Practice (mean = 4.23; SD = 0.92) and 0.87 for Religious Experience (mean = 3.67; SD = 0.97). Confirmatory factor analysis (CFA) indicated a satisfactory fit: $\chi^2/df = 3.75$; p = 0.00; NFI = 0.93; TLI = 0.93; CFI = 0.95, RMSEA = 0.08, 90% CI [0.07, 0.09].

2.2.4 Attitude towards vaccines was assessed by the Vaccination Attitudes Examination (VAX) Scale (Martin and Petrie, 2017). For the present sample, the Cronbach alpha for the VAX was 0,82 (mean = 3.65; SD = 0.72). For the subscales, Cronbach alpha were as follows: 0.84 for Mistrust of vaccine benefit (mean = 3.34; SD = 1.15), 0.71 for Worries over unforeseen future effects (mean = 4.17; SD = 0.93), 0.83 for Concerns about commercial profiteering (mean = 3.48; SD = 1.10) and 0.72 for Preference for natural immunity (mean = 3.61; SD = 0.99). Confirmatory factor analysis (CFA) indicated a satisfactory fit: $\chi^2/df = 2.28$; p = 0.00; NFI = 0.92; TLI = 0.93; CFI = 0.95, RMSEA = 0.07, 90% CI [0.05, 0.08].

4.3. Design

We chose the cross-sectional design and correlational nature of the study.

4.4. Variables

- VI Attachment
 - Glorification
 - General health perception
- Mediator- Religiosity
- VD- attitude towards vaccines

4.5. Statistical Analysis

We conduct preliminary analyses to examine the descriptive statistics and the association of all analyzed variables in the study.

[Type text]

• Kruskal-Wallis and Mann-Whitney tests were conducted to evaluate the possible intergroup differences (for non-normal variables).

• The associations between variables in the mediational model were calculated through bivariate correlations between the four questionnaire-based variables (social religious identity, general health perception, religiosity and attitude towards vaccines).

• We used confirmatory factor analysis (CFA) with SPSS v.20 in order to examine the matrix structure and the fit of the Romanian Version of CRS 15 Scale, VAX Scale and Modes of Religious Identification Scale.

• We tested the meditational models using PROCESS v2.16.3 and AMOS by SPSS v.20.

5. Results

5.1 Preliminary analysis

Kruskal-Wallis test and Mann-Whitney test, indicated significant inter-confessional differences on religious social identity, religiosity and attitude towards vaccines. The results are depicted in Table 1.

Factor	Group	N	Mean rank	U	Z	Mdn	r
ATCH	Orthodox	150	126.56	7659.50	-4.40**	4.70	0.26
	Pentecostals	145	170.18			5.60	
	Orthodox	150	105.58	4512.00	-7.13**	4.70	0.43
	Seventh-day Adventists	121	173.71			6.00	
	Pentecostals	145	116.78	6348.50	-3.89**	5.60	0.24
	Seventh-day Adventists	121	153.53			6.00	
GLOR	Orthodox	150	122.14	6995.50	-5.30**	4.00	0.31
	Pentecostals	145	174.76			4.80	
	Orthodox	150	101.06	3834.00	-8.20**	4.00	0.50
	Seventh-day Adventists	121	179.31			5.60	
	Pentecostals	145	112.85	5778.50	-4.80**	4.80	0.29
	Seventh-day-Adventists	121	158.24			5.60	
CRS_T	Orthodox	150	94.93	2914.50	-10.87**	3.53	0.63
	Pentecostals	145	202.90			4.47	

Table 1. Mann-Whitney comparisons.

[Type text]

	Orthodox	150	94.79	2893.50	-9.64**	3.53	0.59
	Seventh-day Adventists	121	187.09			4.40	
	Pentecostals	145	139.90	7844.00	1.49	4.47	
	Seventh-day Adventists	121	125.83			4.40	
VAX_T	Orthodox	150	133.01	8627.00	-3.07**	3.42	0.18
	Pentecostals	145	163.56			3.67	
	Orthodox	150	117.08	6236.50	-4.43**	3.42	0.27
	Seventh-day Adventists	121	159.46			3.75	
	Pentecostals	145	124.22	7427.00	-2.16*	3.67	0.13
	Seventh-day Adventists	121	144.62			3.75	

Note: ATCH- total score of attachment subscale; GLOR- total score of glorification subscale; CRS_T- total score of CRS scale; VAX_T- total score of VAX scale; Mdn- median; r- the effect size indicator; ** p < .01; * p < .05.

The group of respondents who reported good health indicated a higher level of religiosity than respondents who reported a satisfactory health (see Table 2).

Table	2.	Mann-	Whitney	comparisons
1 4010		TA TOTAL	· · · · · · · · · · · · · · · · · · ·	comparisons

Factor	Group	Ν	Mean rank	U	Z	Mdn	r
CRS_T	Satisfactory health	86	169.10	10802.00	-3.55**	3.83	0.17
	Good health	334	221.16			4.33	

Note: CRS_T- total score of CRS scale; Mdn- median; r- the effect size indicator; ** p < .01.

5.2. Associations among study variables

Attachment and glorification significantly positively correlate with the centrality of religiosity. The centrality of religiosity significantly positively correlates with vaccination attitudes. Attachment and glorification significantly positively correlate with vaccination attitudes. General health perception significantly positively correlates with attachment, glorification, religiosity and attitude towards vaccines (see Table 3).

Table 5. Spear	man associatio	ins among study	y variables.		
Factor	1	2	3	4	5
ATCH	1.00				
GLOR	0.79**	1.00			

Table 3. Spearman associations among study variables.

PGS	0.18**	0.15**	1.00		
CRS_T	0.48**	0.46**	0.13*	1.00	
VAX_T	0.12*	0.22**	0.11*	0.19**	1.00

Note: ATCH- total score of attachment subscale; GLOR- total score of glorification subscale; CRS_T- total score of CRS scale; VAX_T- total score of VAX scale; PGS- total score of the item "In general, would you say your health is";** p < .01; * p < .05.

5.3. Testing for the mediational model in PROCESS

The mediational model is the model in which the mediator function of a third variable which represents the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest (Baron and Kenny, 1986). We tested the conceptual model using PROCESS v2.16.3. The results are depicted in Table 4.

Table 4. Regression results of the mediation of the effect of attachment, glorification andgeneral health perception on attitude towards vaccines by the religiosity.

Model	Estimate	SE	р	CI	CI	
				(lower)	(upper)	
Model without mediator						
Intercept	2.8156	0.2157	< .000	2.3916	2.2395	
АТСН→VАХ (с)	-0.1004	0.0387	0.0098	-0.1766	-0.0243	
GLOR→VAX	0.1991	0.0415	< .000	0.1176	0.2806	
PGS→VAX	0.1095	0.0506	0.031	0.0101	0.2090	
$R^2_{Y,XC1C2}$	0.0773					
Model with mediator						
Intercept	2.5541	0.2391	<.000	2.0842	3.0241	
ATCH→CRS (a)	0.2034	0.0376	<.000	0.1296	0.2773	
GLOR→CRS	0.1164	0.0402	0.0040	0.0373	0.1955	
PGS→CRS	0.0737	0.0491	0.1339	-0.0228	0.1702	
$CRS_T \rightarrow VAX (b)$	0.1240	0.0502	0.0139	0.0253	0.2226	
ATCH→VAX(c')	-0.1257	0.0398	0.0017	-0.2039	-0.0474	
GLOR→VAX	0.1847	0.0416	< .000	0.1028	0.2665	
PGS→VAX	0.1004	0.0504	0.0472	0.0012	0.1995	
Indirect effect (a*b)	0.0252	0.0116	< .01	0.0073	0.0541	
$R^2_{M,XC1C2}$	0.3271					

$R^{2}_{Y,MXC1C2}$ 0.0907

Note: Regression weights a, b, c', and c are illustrated in Figure 1. $R^2_{Y,XC1C2}$ is the proportion of variance in Y explained by X and covariates (glorification and PGS); $R^2_{Y,MXC1C2}$ is the proportion of variance in M explained by X and covariate (glorification and PGS); and $R^2_{Y,MXC1C2}$ is the proportion of variance in Y explained by X, M and covariates (glorification and PGS). The 95% CI for a* b is obtained by the bias-corrected bootstrap with 5,000 resamples. The CIs for R^2 indices are obtained analytically. ATCH (attachment) is the independent variable (X), CRS (religiosity) is the mediator (M), VAX (attitude towards vaccines) is the outcome (Y), C1 is the covariate (glorification), C2 is the covariate PGS, CI (lower)- lower bound of a 95% confidence interval; CI (upper)- upper bound; \rightarrow = effects.

The results show that when the mediator was included in the model the effect of predictors on the outcome has decreased. The Sobel test indicates that religiosity represents a significant mediator of the influence of attachment, glorification and general health perception on the attitude towards vaccines (z = 2.22; p < .05). The mediator had a growth effect of the explained variance in the model.

5.4. Testing for the mediational model in AMOS

Testing the mediational model in wich centrality religiosity and attitude toward vaccines as latent variables, we used AMOS v.20. The conceptual model is depicted in Figure 2.



Figure 1. The conceptual model of the study

Note: ATCH- attachments; GLOR- glorification; INT- intellect; IDE- ideology; PPB- public practice; PPRprivate practice; REX religious experience; PGS- general health perception. MVB- mistrust of vaccine benefit; WFE- worries over unforeseen future effects; CCP- concerns about commercial profiteering; PNI- preference for [Type text]

natural immunity. The values represent standardized regression weights. Model fit results: $\chi^2/df = 3.60$; p = 0.00; TLI = 0.93; CFI = 0.95, RMSEA = 0.08, 90% CI [0.07, 0.09],

The model fit results indicate that the conceptual model of the study can be interpreted and can explain the effect of religious social identity, religiosity and general health perception on attitude toward vaccines. Indirect effects of predictors and the mediator on outcome are depicted in Table 7.

Indirect Path	Unstandardized Estimate	Lower	Upper	p-value	Standardized Estimate
ATCH→VAX	0.382	0.139	1.187	0.006	0.070**
ATCH→PNI	-0.081	-0.137	-0.018	0.028	-0.127*
АТСН→ССР	-0.142	-0.234	-0.038	0.023	-0.199*
ATCH→WFE	-0.067	-0.116	-0.022	0.015	-0.111*
ATCH→MVB	-0.070	-0.122	-0.013	0.029	-0.093*
GLOR→VAX	0.183	0.041	0.660	0.011	0.031*
GLOR→PNI	0.170	0.075	0.244	0.025	0.244*
GLOR→CCP	0.296	0.188	0.396	0.010	0.384**
GLOR→WFE	0.140	0.081	0.201	0.012	0.214*
GLOR→MVB	0.146	0.077	0.211	0.019	0.180*
CRS→PNI	0.126	0.046	0.239	0.009	0.088**
CRS→CCP	0.220	0.082	0.383	0.010	0.138**
CRS→WFE	0.104	0.041	0.189	0.010	0.077**
CRS→MVB	0.108	0.034	0.197	0.015	0.065*
PGS→PNI	0.065	0.001	0.211	0.019	0.045*
PGS→CCP	0.113	0.003	0.270	0.098	0.071*
PGS→WFE	0.054	-0.001	0.158	0.103	0.039
PGS→MVB	0.056	0.001	0.144	0.098	0.033*

 Table 7. Indirect effects of predictors and mediator on outcome.

Note: ATCH- attachments; GLOR- glorification; CRS- centrality religiosity; INT- intellect; IDE- ideology; PPB- public practice; PPR- private practice; REX religious experience; PGS- general health perception. VAX- attitude towards vaccines; MVB- mistrust of vaccine benefit; WFE- worries over unforeseen future effects; CCP- concerns about commercial profiteering; PNI- preference for natural immunity; ** p < .01; * p < .05.

We not found direct effects of predictors (ATCH, GLOR, PGS) and the mediator (CRS) on VAX subscales (MVB, WFE, CCP and PNI). There are significantly negative indirect effects

of attachment on mistrust of vaccine benefit, worries over unforeseen future effects, concerns about commercial profiteering and preference for natural immunity and significantly positive indirect effects of glorification and centrality religiosity. The results of the study showed that relationship between religious social identity and attitude towards vaccines is mediated by religiosity.

6. Discussion

The results confirmed all hypothesis. Because we have not found any studies on the relation between religious social identity, general health perception, the constructivistphenomenological operationalization of religiosity and attitudes towards vaccines, we cannot compare our studies to previous studies. Yet, our findings sustain previous studies when it comes to the general relation between religious social identity, religiosity and the attitude towards vaccines (Repalust, Šević, Rihtar and Štulhofer, 2017; Taylor et al. 2017). The significant differences between different religious identities are consistent with the assumptions of other researchers (Ysseldyk, Matheson and Anisman, 2010). Regarding the better health of high religious people, we take into account the findings of Chatters (2000) that assume that religion is an essential tool in shaping behaviours (eg, risk and protective behaviours) that are consistent with physical and mental health. This includes the prohibition of specific behaviours that are health risks (eg food restrictions and alcohol and tobacco bans) and encouraging health-promoting behaviours (eg regular exercises). These distinct patterns of lifestyle and health behaviours could lead to lower rates of chronic and acute illness within religious groups. Another explanation of a better health of high religious people may be the perceived social control. Violation of the freely assumed norms is sanctioned by the other members. Stavrova, Fetchenhauer and Schlosser (2012) quoting other authors (Brauer and Chekroun, 2005; Gibbs, 1981; Hechter and Opp, 2001; Horne, 2009) have shown that society members communicate their disapproval to norm perpetrators through withdrawal of social support and respect, open criticism, contempt, or disregard. The last form of sanction may be social exclusion. The third explanation shows that people with secure attachments to God tend to be physically and mentally healthier than people with insecure attachments to God (Rowatt and Kirkpatrick, 2002). Our findings are consistent with other studies that indicate that the religious engagement in various forms was generally found to be linked to better physical health. People who identify as religious tend to report better health and happiness regardless of religious affiliation, religious activities, work and family, social support or financial status (Green and Elliott, 2010). The perceived better health of religious people could be a cause that leads to a negative attitude towards vaccines. There are several limitations to the present study. First, we cannot generalise the results on religious population because the representation proportion of the three religious confessions in general Romanian population is unequal. Second, the small number of the areas of Romania are not representative of general people. For that we conclude that our study is a prospective study. The cross-sectional design and correlational nature did not allow the causal inferences. Further studies can analyze our model with other operationalization of variables. Together, religious social identity, general health perception and religiosity may contribute to understanding the nature of religion in human life and how it interacts with other constructs.

Chapter 3: Socio-demographic correlates and centrality of religiosity in

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association with illness cognitions and medication adherence in

Romanian people with chronic disease.

1.Objective:

The aim of this study was to explore the association of two sets of variables in a sample with people with chronic illness. The first set was composed by socio-demographic characteristics and the five centrality of religiosity subscales: intellect (INT), ideology (IDE), public practice (PBP), private practice (PPR) and religious experience (REX). The second set was composed by the three illness cognition subscales: helplessness (HPL), acceptance (ACC), perceived benefits (PBN) and medication adherence (DAI).

2. Theoretical considerations:

Medication adherence. AdherenceAdherence to treatment is a complex phenomenon involving individuals assuming greater responsibility for taking part in healthcare decisions, and involves a clinician-patient partnership that fits with assisted living communities and medical practice (Gould and Mitty, 2010). Adherence to treatment is influenced by several factors including: lifestyle, psychological issues, health information, support systems, perceived medication effects. The patient's personal attributes have the greatest influence on adherence (Cutler and Everett, 2010). Poor adherence to medication regimes contributes substantially to worsening disease, increases health care costs, and causes death (Osterberg and Blaschke, 2005).

Links between religiosity and medication adherence. At least three ways of the impact of religion on health are known: (a) provide the framework for stress reduction and coping in difficult life situations, (b) provide social support, (c) promote a healthy lifestyle (Aukst-Margetić and Margetić, 2005). Spirituality, religiosity and personal beliefs have been associated with compliance with medication among heart failure patients (Alvarez et al., 2016). Effects of religion on treatment compliance have been identified among people with schizophrenia and depression, concluding that although religious beliefs and spirituality are an important source of hope and understanding, they may interfere with adherence to treatment (Zagożdżon and Wrotkowska, 2017). Dominant spirituality/religiosity among hypertensive patients, led to spiritual attachments of the patients with a supreme-being and so, potentially increased their trust in the expectation of divine healing instead of adhering adequately with their anti-hypertensive medications (Kretchy, Owusu-Daaku and Danquah, 2013). Religious individuals also tend to engage in fewer negative health behaviors (eg,

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smoking, alcohol consumption, poor diet), perceive themselves as being healthier than the average person, and have decreased mortality and morbidity, compared with those who are less religious (Steffen, Hinderliter, Blumenthal and Sherwood, 2001)

3. Hypothese

1. We assumed that there is a significant association between religiosity and adherence to medication among patients with chronic diseases.

4. Method

4.1. Participants

The sample consists of 118 (67.2% women) people with chronic illness with ages ranging from 18-86 years. Patients with chronic illnesses were recruited from hospitals, health centers and family doctors network in three cities, on the basis of an informed consent. The study included patients with chronic physical conditions associated with comorbidities. Sampling was based on convenience. Socio-demographic data included age, gender, marital status, residential environment, educational level, income, religious confession.

4.2. Measures

2.2.1. To assess religiosity, The Romanian version of Centrality of Religiosity Scale (CRS 15) was administered (Gheorghe, 2019). For the present sample, the Cronbach alpha for the CRS 15 (mean = 3.95; SD = 0.76) was 0.93. For the subscales, Cronbach alpha were as follows: 0.78 for Intellect (mean = 3.95; SD = 0.76), 0.71 for Ideology (mean = 3.59; SD = 0.96), 0.89 for Public Practice (mean = 3.93; SD = 1.09), 0.77 for Private Practice (mean = 4.27; SD = 0.78) and 0.85 for Religious Experience (mean = 3.56; SD = 0.92).

2.2.2. To assess illness cognitions, we used a scale adapted from The Illness Cognition Questionnaire (Evers et al., 2001). The scale measures illness cognitions in chronic condition through three subscales in which patients assign the meaning of the disease they are facing. Helplesness refers to the negative consequences of the disease in everyday life, acceptance addresses the recognition of the disease and the ability to manage the negative consequences of the disease, and the perceived benefits relate to the long-term consequences. Measurement is done on the four-levels of Likert scale (1 = not at all, 2 = somewhat, 3 = to a large extent, 4 = complete). The score of the whole scale is achieved by summing the scores of the three subscales. The high scores indicate the presence of the cognitions in the respondent. The scale has good psychometric qualities and is suitable for use in research and clinical practice (Lauwerier et al., 2010; Verhoof, Maurice-Stam, Heymans, Evers and Grootenhuis, 2014). In

the present study the Cronbach alpha for the scale was 0.84. For the subscales, Cronbach alpha were as follows: 0.86 for Helplesness (mean = 12.40; SD = 4.35), 0.73 for Acceptance (mean = 15.69; SD = 3.26) and 0.82 for Perceived benefits (mean = 15.41; SD = 4.12).

2.2.3. To assess medication adherence, we used a scale adjusted from Drug Attitude Inventory (DAI 10) (Hogan, Awad and Eastwood, 1983). The scale contains 10 items with yes / no, response. The scale scores vary between -10 and 10. Scoring below 0 indicates low adherence. The scores between 0-5 indicate average adherence and scores between 6-10 good adherence. Good psychometric qualities have ensured the use of the scale in various studies (Saleem, Hassali, Shafie, Awad and Bashir, 2011). In the current study, the Cronbach alpha of the scale was 0.80 (mean = 1.81, SD = 4.90).

4.3. Design

We chose the cross-sectional design and correlational nature of the study.

4.4. Variables

• VI - a set of variables named predictors (age, income, educational level, intellect, ideology, public practice, private practice, religious experiences)

•VD- a set of variables named criterion variables (helplesness, acceptance, perceived benefits, medication adherence)

4.5. Statistical Analysis

• We conduct preliminary analyses to examine the descriptive statistics and the association of all analyzed variables in the study.

• For non-normal variables, non-parametric tests (Kruskall-Wallis and Mann-Whitney) were conducted to evaluate the possible inter-group differences.•

• The associations between variables in the study were calculated through bivariate correlations between the questionnaire-based variables (religiosity, ilness cognition, medication adherence).

• We used Canonical Correlation Analysis (CCA) with SPSS v.20 in order to examine the correlation between two sets of variables.

4.6. Preliminary analyses

Based on socio-demographic variables, significant differences were identified in terms of income, educational level and age. The results of group comparisons are shown in Table 2.

Factor	Grup	Ν	Mean rank	U	Z
DAI	Below 1500 RON	28	30.18	177.00	-2.58**
	Between 3000-6000 RON	22	19.55		
DAI	Below 1500 RON	28	27.63	108.50	-3.05**
	Over 6000 RON	17	15.38		
DAI	Between 15000-3000 RON	45	35.18	217.00	-2.63**
	Over 6000RON	17	21.76		
DAI	Gymnasium	14	19.64	68.00	-2.04*
	Vocational school	17	13.00		
DAI	Gymnasium	14	25.46	84.05	-2.54
	Lyceum	24	16.02		
DAI	Gymnasium	14	45.14	145.00	-3.25
	University	48	27.52		

Tabel 2. Mann-Whitney comparisons

Notă: DAI- adherence; ** p < 0.01; p < 0.05

4.7. Associations analysis of study variables

Bivariate correlations between the variables included in the first and second sets are shown in Table 3.

	HPL	ACC	PBN	DAI
Age	0.14	-0.20*	-0.02	0.36**
Income	-0.37**	0.23*	0.09	-0.35**
Education level	-0.32**	0.16	0.09	-0.25**
INT	0.04	0.31**	0.45**	-0.11
IDE	0.03	0.24**	0.37**	-0.04
РРВ	0.12	0.20*	0.39**	0.05
PPR	0.10	0.07	0.30**	-0.1
REX	-0.01	0.30**	0.47**	-0.08

Table 3. Bivariate correlations between the variables in set 1 and set 2

Note: INT- intellect; IDE- ideology; PPB- public practice; PPR- private practice; REX- religious experience; HPL- helplesness; ACC- acceptance; PBN- perceived benefits; DAI- adherence; ** p < .01; * p < .05.

4.8. Canonical correlation

Canonical Correlation Analysis (CCA) is a multivariate statistical model that facilitates the study of the interrelations between several independent variables and several dependent variables. Canonical correlation identifies the optimal structure or dimensionality of each set of variables that maximizes the relationship between sets of independent and dependent variables. The canonical correlation develops a number of independent canonical functions that maximize the correlation between dependent and independent sets of variables (Hair, Anderson, Tatham and Black, 1998). The multivariate statistical model used in the study is shown in Figure 1.



Figure 1. Illustration of the of the first function in a canonical correlation analysis with eight predictors and four criterion variables. Ed. lev- educational level; INT- intellect; IDE- ideology; PPB- public practice; PPR- private practice; REX- religious experience; HPL- helplesness; ACC- acceptance; BPP- perceived benefits; DAI- medication adherence.

The canonical correlation analysis was conducted between the first set of variables that included socio-demographic variables and the dimensions of religiosity and the second set that included the dimensions of the illness cognitions and adherence. The number of canonical functions generated was equal to the number of variables in the second set, namely 4 functions. The four canonical correlations varied between 0.22 and 0.58. The first canonical correlation was 0.58 (52% variance explained) the second was 0.51 (35% variance explained),

the third was 0.30 (10% variance explained) and the fourth was 0.22 (5% variance explained). From the four canonical functions, only the first two were statistically significant, with all four dimensions included, χ^2 (32) = 3.01, p < 0.000 and the one in which the first dimension was excluded: χ^2 (21) = 2.30, p < 0.01. The other two combinations were not statistically significant. The test results are shown in Table 3. The first test indicates whether all 4 combined sizes are statistically significant. The second test indicates whether after the elimination of the first dimension, the other three combinations lead to a significant result.

variabics.				
	Wilk's λ	χ^2	df	
1	0.42	3.01**	32	
2	0.64	2.30**	21	
3	0.86	1.27	12	
4	0.95	1.02	5	

 Table 3. Results of testing the four canonical correlations between the two sets of variables.

The combination of the last two dimensions, and the last taken alone, are not statistically significant. For the assessment of the contribution of each individual variable, the standardized canonical coefficients were used, which at values above 0.3 indicate the significant contribution of each individual variable.

 Table 4. Canonical correlations and standardized canonical coefficients between study variables.

	Correlation	Coefficient	Correlation	Coefficient
Socio-demographic characteristics and religiosity dimensions (set 1)				
Age	-0.55	-0.36	-0.44	-0.30
Income	0.77	0.48	0.35	-0.40
Education level	0.67	0.26	-0.16	-0.19
INT	0.40	0.37	-0.75	-0.25
IDE	0.32	0.02	-0.56	-0.10
PPB	0.16	-0.07	-0.79	-0.51
PPR	0.20	-0.02	-0.40	0.42
REX	0.53	0.21	-0.66	-0.41
Illness cognitions dimensions and DAI (set 2)				
HPL	-0.52	-0.34	-0.32	-0.22
ACC	0.67	0.40	-0.38	0.09
PBN	0.53	0.29	-0.84	-0.89
DAI	-0.67	-0.59	-0.48	-0.43
Eigenvalue	0.	52	0.	35
Cr	0.	58	0.	51
R^2	0.	34	0.	26

Note: INT- intellect; IDE- ideology; PPB- public practice; PPR- private practice; REX- religious experiences; HPL- helplesness; ACC- acceptance; PBN- perceived benefits, DAI- adherence; Cr- canonical correlation; R²- squared correlation.

Wilks's λ represents an inverse effect size or the amount of variance not shared between the variable sets (Sherry and Henson, 2005). By taking $1 - \lambda$, we found an overall effect of for the full model. For the first canonical function of all dimensions, $R^2 = 0.58$ (1- λ), the model explains 58% of the variance divided between the two sets of variables, and for the second canonical function with 3 variables, $R^2 = 0.36$, the model explains 36% variance divided between the two sets of variables. The analyses showed that a low age (-.55), a high income (0.77) and a high level of religious information (0.40) were associated with a low level of negative consequences of the disease felt in daily life (-0.52), a high level of ability to manage the negative consequences of the disease (0.67) and a low level of adherence (-0.67). The analyses also showed that a high income (0.35), a low participation in public religious

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activities (-0.79), a low frequency of personal prayer (-0.40) and minimal religious experiences (-0.66) are associated with low perceived benefits of long-term disease (-0.84) and with low adherence (-0.48). All the statistical tests used to test the proposed model were significant at p < 0.000 (Pillais = 0.74; Hotellings = 1.02; Wilks = 0.42; Roys = 0.34).

5.Discussion

A number of two canonical functions have been identified, with a variance explained of 58% and 36% respectively. These values suggest that both canonical functions have significant associations that can be interpreted. The results of the first canonical function indicated that low age, high income, and high level of religious information are associated with a low level of negative consequences of illness felt in everyday life, with a high level of ability to manage the negative consequences of the disease and with low adherence to medication. The second canonical function indicated that high income, low participation in public religious activities, low frequency of personal prayer, and minimal religious experiences are associated with low perceived benefits of long-term illness and low adherence.

Literature review revealed different results between age and medication adherence. Some studies showed a statistically significant relationship between age and medication adherence: some articles demonstrated that increased age is correlated with higher medication adherence and others studies found no significant relationship. (Krueger et al., 2015). In patients hospitalized for cardiovascular disease, predictors of lower medication adherence included younger age, Medicaid insurance and baseline nonadherence (Cohen et al., 2012). Berner, Erlacher, Fenzl and Dorner, (2019) found that older participants were more likely to be medication adherent.

Studies that explored the relationship between income and medication adherence found that middle average income was associated with higher medication adherence (Berner, Erlacher, Fenzl and Dorner, 2019). Non significant association between medication adherence and income level was found by Moosazadeh and Shafipour, (2017) in patients with hearth failure. The results of a meta-analisys (DiMatteo, 2004) showed that the average of the correlation between income, social status and adherence is generally positive and significant, but this effect is visible in adult studies and in studies using numerical income measurement.

Religiosity has been positively associated with adherence in some studies, and in others, an opposite or mixed effect has been determined (Freire de Medeiros, Arantes, Tajra et al., 2017; Badanta-Romero, de Diego-Cordero and Rivilla-García, 2018).

The study has some limitations. A first limitation refers to the associations of variables that have been examined in a small number of physically ill patients. Another limitation is the design of the study that does not allow for causal inferences between the variables. The third relates to the degree of generalization of results that is only applicable to adults with chronic illness. Chronic diseases have negative repercussions on quality of life, severely and negatively affecting physical functioning (Hopman et al., 2009). The present study suggests a holistic approach to medication adherence in which consideration of socio-demographic factors and religiosity can explain the nature of non-adherence in Romanian patients. The results of the study may have implications in medical care.

Chapter 4: How does Religious Social Identity, Religiosity and Procedural

and Distributive Justice Beliefs for Self, affect the well-being of the young Romanians.

1.Objective:

The aim of this study was to explore the level of the psychological well-being among high school students of two types of education: lay and confessional and to investigate the impact of the procedural and distributive justice beliefs for self on the relationship between religious social identity, religiosity and psychological well-being.

2.Theoretical considerations:

Believe in a just world. According to Dalbert (2009) the just world hypothesis states that people need to believe in a just world in which everyone gets what they deserve and deserves what they get. Because the main properties of the belief in a just world endowing trust in the fairness of the world, and providing a framework for the interpretation of the events in one's life, the belief in a just world can be expected to positively impact subjective well-being, either directly or indirectly.

Religiosity and religious identity. Hogg, Adelman and Blagg (2010) characterize religions as social groups and religiosity as the extent to which a person identifies with a religion, subscribes to its ideology or worldview, and conforms to its normative practices. They argue that religions have attributes that make them well suited to reduce feelings of self-uncertainty. Most religions subscribe to the just world hypothesis, that good things happen to good people. The power of religion likely comes from its potential to simultaneously serve so many vital psychological needs. Religious belief may offer multiple routes for salvation from the anxious uncertainties inherent in human life (Kay, Gaucher, McGregor and Nash, 2010). While it is clear that religion can influence global beliefs, goals, and a subjective sense of well-being, the specific forms of these influences is poorly understood (Park, 2005).

Well-being. In normative definitions, well-being is not a subjective state, but the possession of a desirable quality. In essence, stable wellbeing is when individuals have the psychological, social and physical resources they need to meet a particular psychological, social and/or physical challenge (Dodge, Daly, Huyton and Sanders, 2012). The model used in study (Ryff and Keyes, 1995) is drawn from points of convergence in prior theories of life course development, clinical accounts of positive functioning, and mental health conceptions, and it

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includes six distinct components of psychological wellness: self-acceptance, environmental mastery, purpose in life, positive relations with others, personal growth, and autonomy.

Links between believe in a just world, religiosity, religious identity and well-being. The results of the studies clearly indicate the supremacy of personal belief in a just world over other justice beliefs in explaining well-being (Fatima and Suhail, 2010). The important function that justice beliefs play in the subjective well-being and social attitudes was found in Khera, Harvey and Callan's study (2014). People who had strong beliefs in a just world seem to have better abilities to cope with negative life events and better self-rated feelings of well-being (Nasser, Doumit and Carifio, 2011). The results of Correia and Dalbert's study (2007), support the notion that personal belief in just world is a valuable resource for school students as it seems to maintain their subjective well-being.

3.Hypothesis

- 1. There are the level differences of psychological well-being between high school students of lay education and high school students of confessional education,
- 2. Procedural and distributive justice beliefs for self is a mediator in the relationships between religious social identity, religiosity and psychological well-being.

4. Methods

4.1. Participants

A total of 172 high school students (70 boys, 77 girls, 25 not specified gender) with ages ranging from 16-19 years (mean age = 17.36, SD = 0.75), were recruited from three high schools of North East-em part of Romania. Sampling was based on convenience. Socio-demographic data included age, gender, educational level, religious confession.

4.2. Measures

2.2.1Religious identification was assessed by Modes of Religious Identification, version adapted after Modes of National Identification (Roccas, Klar and Liviatan, 2006). We adopted the scale used by Berndsen, Thomas, McGarty, Bliuc, and Hendreş (2017). Respondents indicated their agreement of the items on a 7-point scale (1-strongly disagree; 7-strongly agree). For the present sample, the Cronbach alpha for Glorification subscale is 0.81 (mean = 4.34; SD = 1.33) and 0.93 for Attachment subscale (mean = 4.54; SD = 1.65). In order to verify the factorial validity of the dimensions, we used confirmatory factor analysis (CFA). The model fit results were: $\chi^2/df = 1.7$; p = 0.009; TLI = 0.98; CFI = 0.98, RMSEA = 0.06, 90% CI [0.03, 0.09]. Higher scores reflect stronger attachment and glorification. [Type text]

2.2.2. To assess religiosity, The Romanian version of Centrality of Religiosity Scale (CRS 15) was administered. For the present sample, the Cronbach alpha for the CRS 15 (mean = 3.57; SD = 0.89) was 0,94. For the subscales, Cronbach alpha were as follows: 0.76 for Intellect (mean = 3.00; SD = 0.91), 0.72 for Ideology (mean = 4.28; SD = 0.85), 0.90 for Public Practice (mean = 3.52; SD = 1.16), 0.89 for Private Practice (mean = 3.75; SD = 1.16) and 0.87 for Religious Experience (mean = 3.27; SD = 1.02). Confirmatory factor analysis (CFA) indicated a satisfactory fit: $\chi^2/df = 1.94$; p = 0.00; TLI = 0.95; CFI = 0.96, RMSEA = 0.07, 90% CI [0.06, 0.09].

2.2.3. Procedural and distributive justice beliefs for self was assessed by Procedural and Distributive Justice Beliefs for Self Assessment (Lucas, Zhdanova, and Alexander, 2011). The scale consists of 8 items divided in two subscales: procedural justice for self and distributive justice for self. Respondents indicated their agreement of the items on a 7-point scale (1-strongly disagree; 7-strongly agree). For the present sample, the Cronbach alpha for procedural justice subscale is 0.85 (mean = 18.25; SD = 4.46) and 0.71 for distributive justice subscale (mean = 19.59; SD = 4.00). Confirmatory factor analysis (CFA) indicated a good fit: $\chi^2/df = 1.38$; p = 0.13; TLI = 0.98; CFI = 0.99, RMSEA = 0.05, 90% CI [0.00, 0.09]. Higher scores indicating a stronger belief in justice.

2.2.3. Psychological well-being was assessed by Ryff's Scales of Psychological Well-Being (Ryff, 1995). The scale consists of 18 items. Respondents indicated their agreement of the items on a 7-point scale (1-strongly disagree; 7-strongly agree). For the present sample, the Cronbach alpha for the scale is 0.77 (mean = 4.40; SD = 0.54). Confirmatory factor analysis (CFA) indicated a good fit for a single factor: $\chi^2/df = 1.25$; p = 0.03; TLI = 0.92; CFI = 0.93, RMSEA = 0.04, 90% CI [0.01, 0.06]. Higher scores indicating high level of psychological well-being.

4.3. Design

We chose the cross-sectional design and correlational nature of the study.

4.4. Variables

- VI Attachment
 - Religiosity

- Mediator- Procedural and Distributive Justice Beliefs for Self
- VD- PsichologicalWell-being

4.5. Statistical Analysis

We conduct preliminary analyses to examine the descriptive statistics and the association of all analyzed variables in the study.

• Independent-samples t test and One-way ANOVA were conducted to evaluate the possible inter-group differences.

• Nonparametric tests were used for non-normal variables.

• The associations between variables in the mediational model were calculated through bivariate correlations between the four questionnaire-based variables.

• We used confirmatory factor analysis (CFA) with SPSS v.20 in order to examine the matrix structure and the fit of the scales.

•. We tested the mediational models using PROCESS custom dialog for IBM SPSS (Hayes, 2013) and AMOS with SPSS v.20.

5. Results

5.1 Preliminary analysis

The results showed that there were no significant differences of gender by psychological well-being. Independent sample t-test indicated significant education types differences in psychological well-being t(170) = 3.27, p < .01, revealing that high school students of lay education reported high scores of psychological well-being, respectively M(SD) = 4.53 (0.59) compared to high school students of confessional education, M(SD) = 4.27 (0.45). Significant religiosity differences (U = 1166.50, z = -7.76, p < 0.01) was found between high school students of lay education (*mean rank* = 57.06) and high school of confessional education (*mean rank* = 115.94). High school students of confessional education indicated significant (U = 2973.00, z = -2.22, p < 0.05) higher level of attachment (*mean rank* = 94.93) than high school students of lay education (*mean rank* = 78.07). Mann-Whitney test indicated significant distributive justice beliefs differences (U = 2770.50, z = -2.85, p < 0.01) between high school students of lay education (*mean rank* = 97.28) and high school students of school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay education (*mean rank* = 97.28) and high school students of lay educatio

rank = 97.88) than high school students of confessional education (*mean rank* = 75.12). One-Way ANOVA indicated significant confessional differences in psychological well-being F(2, 169) = 3.708, p < 0.05. The results are depicted in Figure 1.



Note: PWB- psychological well-being; TCF- confessional types; $M(SD)_{ort} = 4.51(0.61)$; $M(SD)_{pent} = 4.26$ (0.48)); $M(SD)_{others} = 4.40$ (0.54).

Kruskal-Wallis test revealed significant confessional diferences in religiosity (H(2) = 56.29, p < 0.00) and in distributive justice beliefs (H(2) = 7.79, p < 0.05). Mann-Whitney test (U = 680.50, z = -7.37, p < 0.00), showed that Orthodox (mean rank = 48.22) are less religious than Pentecostals (mean rank = 99.20). Significant confessional differences (U = 841.00, z = -2.47, p < 0.05) was found between Orthodox and other confessions, respectively Orthodox (mean rank = 50.28) are less religious than others (mean rank = 66.87). Orthodox (mean rank = 79.69) indicated significant (U = 1779.50, z = -2.82, p < 0.01) higher scores than Pentecostals (mean rank = 60.25) in distributive justice beliefs. Not found significant confessional differences in attachment and procedural justice beliefs.

5.2. Associations among study variables

Zero-order correlation among attachment, dimensions of religiosity, procedural justice beliefs, distributive justice beliefs and psychological well-being are presented in Table 2.

Factor	1	2	3	4	5	6	7	8	9
ATCH	1.00								
INT	0.43**	1.00							
IDE	0.39**	0.51**	1.00						
PPB	0.55**	0.62**	0.67**	1.00					
PPR	0.51**	0.53**	0.63**	0.88**	1.00				
REX	0.49**	0.54**	0.58**	0.67**	0.69**	1.00			
DJS	0.17*	0.03	-0.20**	-0.13	-0.08	0.00	1.00		
PJS	0.32**	0.09	-0.07	0.04	0.08	0.02	0.44**	1.00	
PWB	0.04	-0.06	-0.12	-0.12	-0.06	0.03	0.33**	0.24**	1.00

Table 2. Associations among the main study variables for the entire sample.

Note: ATCH- total score for attachment subscale; CRS_IN- total score for intellect dimension; CRS_ID- total score for ideology dimension; CRS_PP- total score for public practice dimension; CRS_PR- total score for private practice dimension; CRS_EX- total score for religious experience dimension; DJS- total score for distributive justice beliefs; PJS- total score for procedural justice beliefs; PWB- total score for psychological well-being; ** p < 0.01; * p < 0.05.

5.3. Mediational analyses

5.3.1. Mediational analyses in PROCESS

In order to test the hypothesized mediation model we used the PROCES custom dialog for IBM SPSS (Hayes, 2013). Mediation analyses were performed to verify whether the relations between the attachment, dimensions of religiosity and psychological well-being were mediated by procedural and distributive justice beliefs for self. In the model attachment was the independent variable, dimensions of religiosity were the covariates, psychological well-being was the dependent variable and procedural and distributive justice beliefs for self were the potential mediators. In the first analysis attachment was independent variable, psychological well-being was dependent variable, the subscales of centrality religiosity was covariates and the procedural justice beliefs for self was the potential mediator. Attachment had a significant effect on psychological well-being: the indirect effect has a point estimate of .0364 and a 95% BC boostrap CI of 0.0140 to 0.0742. The total amount of variance accounted for in the model was 12.57% (adjusted $R^2 = 0.1257$). The Sobel test used for the post hoc examination of the model indicates that distributive justice beliefs for self represent significant mediator of the influence of the religious attachment on psychological well-being

(z = 2.75, p < 0.01). In the second model we remove the distributive justice beliefs for self mediator with the procedural justice beliefs for self. The analysis revealed that religious attachment had a significant effect on psychological well-being: the indirect effect has a point estimate of .0319 and a 95% BC bootstrap CI of 0.0103 to 0.0657. The total amount of variance accounted for in the model was 7.75% (adjusted $R^2 = 0.0775$). The Sobel test used for the post hoc examination of the model indicates that procedural justice beliefs for self represent significant mediator of the influence of the religious attachment on psychological well-being (z = 2.34, p < 0.05). In the third model we kept all variables except the mediator which I have replaced with the procedural and distributive justice beliefs for self. The analysis revealed that religious attachment had a significant effect on psychological well-being: the indirect effect has a point estimate of .0511 and a 95% BC bootstrap CI of 0.0228 to 0.0954. The total amount of variance accounted for in the model was 12.72% (adjusted $R^2 = 0.1272$). The Sobel test indicates that procedural and distributive justice beliefs for self represent significant mediator of the religious attachment on psychological well-being (z = 3.23, p < 0.01).

5.3.2. Mediational analyses in AMOS

To identify the effect of each subscale of centrality religiosity we ran an analysis in which religious attachment was independent variable, psychological well-being was dependent variable, the subscales of centrality religiosity was covariates and procedural and distributive justice beliefs for self was latent variable. Attachment had a significant direct effect on procedural and distributive justice beliefs for self for self had a significant direct effect on psychological well-being (p < 0.00). Attachment had a not significant direct effect on psychological well-being (p < 0.00). Attachment had a not significant direct effect on psychological well-being (p = 0.11). Public practice had a significant direct effect on procedural and distributive justice beliefs (p = 0.007). The conceptual model of the study is showed in Figure 2. Indirect effects of predictors on outcome are depicted in Table 3.

[Type text]



Note: ATCH- attachment; INT- intellect; IDE- ideology; PPB- public practice; PPR- private practice; REXreligious experience; PDJBS- procedural and distributive justice beliefs, DJS- distributive justice beliefs, PJSprocedural justice beliefs, PWB- psychological well-being. The values represent standardized regression weights. Model fit results: $\chi^2/df = 1.13$; p = 0.33; TLI = 0.99; CFI = 0.99, RMSEA = 0.03, 90% CI [0.00, 0.09],

Figure 2. The conceptual model of the study.

Indirect Path	Unstandardized	Lower	Upper	p-value	Standardized
	Estimate				Estimate
ATCH→PWB	0.087	0.043	0.142	0.007	0.266**
INT→PWB	0.044	-0.006	0.092	0.138	0.074
IDE→PWB	-0.036	-0.139	0.020	0.245	-0.056
PPB→PWB	-0.126	-0.241	-0.028	0.045	-0.270*
PPR→PWB	0.042	-0.023	0.122	0.298	0.090
REX→PWB	-0.004	-0.053	0.070	0.934	-0.007

Table 3. Indirect effects of predictors on outcome.

Note: ATCH- attachment; PWB- psychological well-being; INT- intellect; IDE- ideology; PPB- public practice; PPR- private practice; REX- religious experience; ** p < .01; * p < .05; \rightarrow effect.

[Type text]

We not found direct effects of ATCH and centrality religiosity dimensions on PWB. The standardized indirect (mediated) effect of attachment on psychological well-being is 0.266. Negative indirect effects of public practice (-0.270) were found.

6. Discussion

The results confirmed the two hypothesis. Our findings are in accordance to previous studies in which religious attitude exerted a mediated effect on psychological well-being (Aghababaei et al.2016). The results of Krok (2014) showed that the system of religious significance was positively linked to the eudaimonic well-being. In our study, the relationship between religious attachment, dimensions of religiosity and psychological well-being was found to be mediated by procedural and distributive justice beliefs. Specifically, in a religious context when young people consider themselves to be judged on the basis of fair processes and that they usually deserve the things they receive, attachment has a significant positive effect on well-being, but not public participation in religious rituals that has a significant negativeeffect. Psychologically, the sense of belonging, and not public participation in religious rituals, has a positive effect on the well-being of young people when they believe in a just world. The study confirm the mediating role of the procedural and distributive justice beliefs for self and validates it in relationship with psychological well-being in young people. There are several limitations to the present study. First, the small number of the areas of Romania are not representative of general people. Second, the cross-sectional design and correlational nature did not allow the causal inferences. Further studies can analyze our model with other operationalization of variables. Together, religious social identity, religiosity, procedural an distributive justice beliefs for self may contribute to understanding the nature of religion in human life and how it interacts with other constructs.

7.Conclusion

The current findings established the links between religious attachment, constructivistphenomenological construct of religiosity and psychological well-being in young Romanians and showed that the above links can be fully mediated by procedural and distributive justice beliefs for self.

Chapter 5: Major findings and their implications

5.1 General discussion

CRS 15 was designed to asses the individual's personal perspective on religiosity and to enable the studying of its implications in daily life. In Romanian people declared to be religious, the main aim of the study was to examine the impact of religiosity and religious social identity on attitude toward vaccines, on medication attitude and on well-being. All four papers are based on data from CRS 15, and the findings from this research are important in medicine care and clinical practice. Overall, the aim of the studies were to increase Romanian's knowledge about the impact of religion on their own health and well-being. Strongly debated in the media, the subject of vaccines still polarizes the Romanian population. The findings of the current studies identify the most appropriate measures of religiosity and attitude towards vaccines and shows the impact that religion may have on this subject of public interest. Also, the findings highlight the importance of religiosity and religious social identity on medication adherence and psychological well-being.

5.1.1 Methodological aspects

Each research is based on data from cross-sectional study. Respondent's reported data were collected by using measures probated in international studies. For some measures the approval for use was received. In all studies, all respondents received identical sets of questionnaires. The scales were completed by participants after they were ensured that their participation in the studies was anonymous and confidential. Every participant was explained the purpose of the research. The data were completed on a voluntary basis and informed consent. The respondents completed the scales individually without receiving any compensation. In the study focused on the relation between religiosity and medication adherence, participants reported different physical diseases with associated comorbidities. For some elderly the sets of questionnaires have been completed by medical staff at their indication. For each paper sampling was based on convenience. No external funding was received.

5.1.2 Representativity of study population

Except a few data, all data of the studies were collected individually by paper-pencil procedure. The convenience sampling reduced the participation of non-respondents. The participants were recruited from different religious confessions of different areas of Romania. The participant population included young, adult and elderly people, from different religious

confessions and with different health statuses. Studies are comprised only of Romanian people belonging to Abrahamic religions. The four studies comprised 912 participants. Centrality of religiosity measure solves the question of representativeness which presupposes the existence of those expressions of representative religiosity for the whole of religious life and taking into account the individual's perspective, the proposed measure detects the position of religiosity in personality.

5.1.3 Population included in study I- IV.

In study I we used data from all data-collection in 2018. For studies II and III we used data from 2018-2019, and for study IV we used data from 2019. Study I included respondents aged 14- 51 years, study II included respondents aged 16- 62 years, Study III included respondents aged 18-86 years, while study IV included respondents aged 16- 19 years.

5.1.4 Answers to research questions

The findings of the studies were able to provide the following answers to research questions:

• The validated Romanian Version of The Centrality of Religiosity Scale (CRS 15) is a valid and reliable measure in detecting the centrality of religiosity.

• The scale can be used in Romania for both the Orthodox majority population and other religious confessions.

• Vaccination Attitudes Examination (VAX) scale is a valid and reliable measure in detecting the vaccine-hesitant Romanian people.

• We found significant differences on the attitude towards vaccines on different religious confessions.

• We found that religiosity represents a significant mediator of the influence of the religious social identity and the general health perception on the attitude towards vaccines.

• Two canonical functions indicated two sets of associations between religiosity and cognitive assessment of disease, respectively of medication attitude.

• We found an indirect effect (mediated by procedural and distributive justice beliefs for self) of religious attachment and religiosity on psychological well-being.

5.1.4 Medicine care implications

The results of the first study have recommended the use of CRS 15 in subsequent studies. The validated measure was confirmed to be an appropriate instrument for exploration the associations with the attitude towards vaccines and medication adherence.

Religiosity and attitude towards vaccines

The study proposes a conceptual model that suggests centrality of religiosity with five dimensions (intellect, ideology, public practice, private practice and religious experience) which may indirectly affect the relation between religious attachment, religious glorification, general health perception and anti-vaccination attitudes that predict vaccination behavior. The results of the study showed a possible mechanism by which together religious social identity, religiosity and general health perception may explain the association with attitude towards vaccines. The cross-sectional design of the study limits its ability to definitively reveal the mechanism, but the evidence of the indirect effects confirm the existence of the links between religion (religious social identity and religiosity) and attitude towards vaccines. This insight may aid decision makers to take into account religion in approaching the denials.

Religiosity and medication adherence.

The study suggests a conceptual model which maximizes the correlations between two sets of variables. The results confirm the findings of previous studies that found the links between religiosity and medication adherence. Two canonical functions highlight on two possible mechanisms that explain medication adherence. The first showed that low age, high income, and a high level of religious information are associated with a low level of negative consequences of illness felt in everyday life, with a high level of ability to manage the negative consequences of the disease and with low adherence. The second canonical function indicated that high income, low participation in public religious activities, a low frequency of personal prayer, and minimal religious experiences are associated with low perceived benefits of long-term illness and low adherence. The findings of the study suggest a holistic approach to medication adherence in which consideration of socio-demographic factors and religiosity can explain the nature of non-adherence in Romanian patients. The results of the study may have implications in medical care.

Religiosity and psychological well-being.

The conceptual model of the study suggests procedural and distributive justice beliefs for self with two dimensions which may indirectly affect the relation between religious attachment, religiosity dimensions and psychological well-being. While previous studies showed direct pathways between different operationalizations of religiosity and well-being, our study identified indirect pathways and showed indirect effects of religious attachment and religiosity on psychological well-being in young Romanians. The findings of the study revealed that the proposed model is appropriate to religious reality of the young. Psychologically, for them, the religious attachment and not public participation in religious rituals has a positive effect on the well-being of when they believe in a just world. This insight may answer the questions of parents and religious leaders which are preoccupied by non-participation of the young at religious services.

Limitations

When interpreting the results of these studies, several limitations must be recognized. Cross-sectional design and correlational nature of the studies II-IV did not permit determination of causal relationships among variables. For that we conclude that our studies are prospective. Second, the studies refer only to the Christians and we did not recognize the factors that affect attitude towards vaccines and medication adherence (study II and study III) for different faith and religious sistems. Third, we cannot generalise the results on religious population because the representation proportion of the three religious confessions in general Romanian population is unequal (study II). The small number of the areas of Romania from which the respondents were recruited, is not representative of general people (study I-IV). Another limitation refers to the convenience sample that does not use the random sampling. These studies were conducted with relative samples and some social categories were poorly represented.

Strenghts

The first study brought in Romania a reliable and valid measure of religiosity appropriate for all religious confessions. The scale construction strategy solves the question of representativeness which presupposes the existence of those expressions of representative religiosity for the total of religious life and the generalizability of the religious content targeted by the indicators, condition of which the identified contents must be significant and acceptable in most religious traditions. The studies II-IV identified mechanisms and potential mediators by which religious social identity and religiosity may affect attitude towards vaccines, medication adherence and psychological well-being. For the first time in Romania, the four studies promote the measures used in international studies (e.g. CRS15, VAX, ICQ). The findings of the studies inform Romanian people on the effects of religious social identity and religiosity on attitude towards vaccines, medication adherence and psychological well-being.

Conclusion

The results indicate that the measures used in the four studies were appropriate to the proposed aims and that the findings of the studies may be interpreted. Also the findings can aid common people and patients in using this information to improve health. Health professionals can use this information to improve medical care. Parents and religious leaders can use this information for understanding the younger's behavior.

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