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Short report

Validation of the Croatian Version of the Duke Religion Index (DUREL-hr) among Medical School Students

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ABSTRACT

The purpose of this study was to develop and examine the psychometric properties of the Croatian version of the Duke Religion Index (DUREL-hr) and to examine religiousness trend among medical students of different study years. Our results demonstrated high internal consistency (Coefficient Alpha ranging from 0.883 for the total scale to 0.9398 for the intrinsic subscale) of DUREL-hr as well as students' religiousness results comparable to other studies on the religiousness of the youth in Croatia. DUREL-hr is a reliable and valid instrument suitable to use in Croatian language. Authors encourage studies on the relationship of religiousness and health in Croatia.

Key words: *religiousness and medicine, medical education, psychometrics, students, mental health, Croatia*

Introduction

The interconnection of religiousness, spirituality and health has been a topic of growing research interest in the last decade[1,2]. Religiosity (religiousness) itself is a complex term implicating involvement in religious activities, religious attitudes and believes[3]. Thus, it has usually been divided in three major dimensions[4]: 1) organizational religious activity (ORA) which involves public religious activities such as attending religious services or participating in other group-related religious activities, 2) non-organizational religious activity (NORA) which consists of religious activities performed in private, such as prayer, Scripture study, watching religious TV or listening to religious radio, and 3) intrinsic or subjective religiosity (IR) referring to a degree of personal religious commitment or motivation. Spirituality, on the other hand, is a related yet distinct, more abstract term which pertains to the realm of the undefinable and is better accepted in current postmodern Western culture[4,5]. In scientific medical literature, these two terms are often used interchangeably as synonyms[6].

In recent medical literature religiosity and spirituality have been mostly studied in relation to psychiatric disorders, primarily depression and suicidality, even though its relation and role in patients' recovery are still unclear[7,8]. Another research direction is the interconnection of religiosity/spirituality with health risk behavior, mental health, coping strategies and substance abuse[9], with adolescent population as a frequent specific target group[6,10–12]. However, related research present inconsistent findings due to the multidimensional nature of the religiosity/spirituality concept[13] and lack of adjustment for religious affiliation[14].

Nevertheless, a growing number of medical schools in US and worldwide offer courses in *spirituality and health* outlining the most common objectives such as to understand: 1) how patients' spiritual believes impact health, 2) how medical students own spiritual belief systems can affect the care they provide and 3) to develop students' skills to take spiritual history[15].

In line with current scientific trends more than 120 different instruments and scales for measurement of dif-

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TABLE 1

DUREL (ORIGINAL ENGLISH VERSION) AND DUREL-HR (CROATIAN VERSION)

English version
(1) **How often do you attend church or other religious meetings? (ORA)**
1 – Never; 2 – Once a year or less; 3 – A few times a year; 4 – A few times a month; 5 – Once a week; 6 – More than once/week
(2) **How often do you spend time in private religious activities, such as prayer, meditation or Bible study? (NORA)**
1 – Rarely or never; 2 – A few times a month; 3 – Once a week; 4 – Two or more times/week; 5 – Daily; 6 – More than once a day
(3) **In my life, I experience the presence of the Divine (*i.e.*, God) – (IR)**
1 – Definitely *not* true; 2 – Tends *not* to be true; 3 – Unsure; 4 – Tends to be true; 5 – Definitely true of me
(4) **My religious beliefs are what really lie behind my whole approach to life – (IR)**
1 – Definitely *not* true; 2 – Tends *not* to be true; 3 – Unsure; 4 – Tends to be true; 5 – Definitely true of me
(5) **I try hard to carry my religion over into all other dealings in life – (IR)**
1 – Definitely *not* true; 2 – Tends *not* to be true; 3 – Unsure; 4 – Tends to be true; 5 – Definitely true of me
Croatian version
(1) **Koliko često idete na misu ili druge religiozne susrete? (ORA)**
1 – Nikada; 2 – Jednom godišnje ili rjeđe; 3 – Nekoliko puta godišnje; 4 – Nekoliko puta mjesečno; 5 – Jednom tjedno; 6 – Češće od jednom tjedno
(2) **Koliko često provodite vrijeme u religioznim aktivnostima poput molitve, meditacije ili čitanja Biblije**? (NORA)
1 – Rijetko ili nikada; 2 – Nekoliko puta mjesečno; 3 – Jednom tjedno; 4 – Dva ili više puta tjedno; 5 – Svaki dan; 6 – Češće od jednom dnevno
(3) **U svojem životu doživljavam prisutnost nadnaravnog (npr. Boga). (IR)**
1 – U potpunosti se *ne* odnosi na mene; 2 – Uglavnom se *ne* odnosi na mene; 3 – nisam siguran/sigurna; 4 – Uglavnom se odnosi na mene; 5 – Definitivno se odnosi na mene
(4) **Moja religiozna uvjerenja su ono što je uistinu u pozadini cijelog mog pristupa životu**. (IR)
1 – U potpunosti se *ne* odnosi na mene; 2 – Uglavnom se *ne* odnosi na mene; 3 – nisam siguran/sigurna; 4 – Uglavnom se odnosi na mene; 5 – Definitivno se odnosi na mene
(5) **Trudim se živjeti svoju vjeru u svim drugim djelatnostima u svom životu. (IR)**
1 – U potpunosti se *ne* odnosi na mene; 2 – Uglavnom se *ne* odnosi na mene; 3 – nisam siguran/sigurna; 4 – Uglavnom se odnosi na mene; 5 – Definitivno se odnosi na mene

ferent aspects of religiosity and spirituality have been validated in English language literature[16]. In Croatian language there are studies on religiosity from psychological[17], sociological[18] and medical perspective[19–21], however, there are few internationally acknowledged instruments translated, adapted and validated to be of use in Croatian research community, especially among adolescents.

The Duke Religion Index, DUREL,[22] is a brief scale with good psychometric characteristics already translated into more than ten languages and used in worldwide studies[23–26]. It is a five-item measure of religious involvement, briefly assessing the three major dimensions of religiosity: organizational religious activity (ORA), non-organizational religious activity (NORA), and intrinsic (or subjective) religiosity (IR)[24]. ORA and NORA are scored on a six-point Likert scale while the three IR items use a five-point Likert-type scale.

The aim of this research was to translate and examine the psychometric properties of the Croatian version of DUREL, DUREL-hr (Table 1) and to explore its results among medical students.

Subjects and Methods

To develop the DUREL-hr index several subsequent steps were conducted. One of the authors (LM) performed the initial translation from English to Croatian which was subsequently revised by two other investigators (GP, SS). This version was translated back to English by a professional translator and compared to the original English version. All differences were discussed between Croatian speaking authors and, thus, the final Croatian version was established. Slight translational differences between the first, literal Croatian translation and the final one were accepted in order for the questionnaire to be more in line with Croatian language features and culture.

Subsequently, the final Croatian version was administered to first year (290), third year (121) and final, sixth year (124) medical students of University of Zagreb Medical School. All together 535 validly filled forms were collected (332 female and 203 male participants) together with 9 incomplete forms which were excluded from further analysis. Student mean age was 18.8 (SD 0.67) with median 19, (range 18-24).

This research is a part of a larger study conducted in school year 2015/16 concerning professional competences of medical students and was approved by the Zagreb School of Medicine Ethics committee. Data on gender, parents' education, place of growing up (town/village), potential choice of specialty were also collected. All data were analyzed by using the MedCalc statistical package. P values below 0.05 were considered significant.

Results

Our results are presented according to the original author's interpretation of the DUREL scale where each of the three dimensions of religiosity should be measured by a separate "subscale", organizational religious activity (ORA, question 1), non-organizational religious activity (NORA, question 2), and intrinsic (or subjective) religios-

TABLE 2
RESULTS ON QUESTION 1 (ORA) AND 2 (NORA), CHI-SQUARED TEST

Variable	Year	Total			Never	Once a year or less	A few times a year	A few times a month	Once a week	More than once a week	X^2= ; Df= ; P=.
		N	M	SD	%	%	%	%	%	%	
Q 1. How often do you attend church or other religious meetings?	1	282	3,20	1,543	21,3%	12,4%	22,7%	15,6%	24,8%	3,2%	X^2=20.028; Df=10; P=0.029
	3	114	2,97	1,537	21,1%	22,8%	20,2%	15,8%	14,0%	6,1%	
	6	124	2,91	1,653	29,8%	13,7%	21,8%	12,1%	15,3%	7,3%	
	Total	520	3,08	1,571	23,3%	15,0%	21,9%	14,8%	20,2%	4,8%	
Variable	Year	Total			Rarely or never	A few times a month	Once a week	Two or more times/week	Daily	More than once a day	X^2=19.449; Df=10; P=0.0349
		N	M	SD	%	%	%	%	%	%	
Q 2. How often do you spend time in private religious activities, such as prayer, meditation or Bible study?	1	281	2,70	1,739	44,5%	8,9%	6,0%	13,5%	26,7%	0,4%	
	3	115	2,75	1,806	43,5%	10,4%	6,1%	12,2%	23,5%	4,3%	
	6	124	2,38	1,699	51,6%	14,5%	1,6%	9,7%	21,8%	0,8%	
	Total	520	2,63	1,747	46,0%	10,6%	5,0%	12,3%	24,8%	1,3%	

ity (IR, questions 3-5), instead of understanding DUREL as a single scale questionnaire.

Results to the answers for each individual question are displayed in Tables 2 and 3. The first question, on the frequency of attendance to church or other religious meetings (ORA) indicates that in average 60% of all students attend such meetings only *few times a year, less or never,* while 25% of them attend *once a week* or *more often*. Regarding attendance trends among students of different years, a significantly higher (p=0.029) number of final, 6th year students gave more extreme answers, meaning on the one hand, attending them *never* or, on the other hand, attending them *more than once a week*.

Regarding the frequency of private religious activities, such as prayer, meditation or Bible study (question 2, NORA), nearly half of all students do it *rarely or never*, while a quarter *daily* or *more often*. Advancing in their studies students perform these activities significantly less frequently.

Questions 3, 4 and 5 (Table 3) form a subscale measuring intrinsic religiosity (experience of the presence of the Divine in everyday life, religiosity influencing the approach to life, struggle to carry personal religion over into all other dealings in life). Generally, a quarter of all participants explicitly deny any form of intrinsic religiosity experience and influence in their life, 9 -18% confirm a definite influence, while the rest is uncertain or neutral. As in previous questions, senior students demonstrate more extreme answers on both sides.

Internal consistency reliability and validity

DUREL-hr demonstrated high internal consistency when administered among medical students. Cronbach α coefficient spans from 0,873 to 0,939 for the intrinsic subscale in questions 3 to 5, which speaks in favor of good reliability. According to the conducted analysis, a single factor solution was obtained and, therefore, these three questions (3 to 5) can be approved as a scale measuring the same construct (IR).

Regarding students' gender, no statistically significant differences have been found between female and male participants in all stated questions. No difference, either, was found regarding the place of growing up (town or village), parents' educational level, or desired specialization (responses offered were: doesn't know yet, surgical, internal medicine and other). In this research, no statistical procedures were conducted to examine the relationship between DUREL-hr and other measures of religiosity/spirituality available in Croatian language.

Discussion

Our results confirm that DUREL-hr is a valid and reliable tool as well as easy to administer in medical students' setting, a fact that has been affirmed by the original author of the measure[24] and by other researchers[1,25,26]. It should be noted that, according to the original author, DUREL measures each of the three dimensions of religios-

TABLE 3

RESULTS OF THE DUREL SCALE (QUESTIONS 3-5) – IR

Variable	Year	Total			Definitely not true	Tends not to be true	Unsure	Tends to be true	Definitely true on me
		N	M	SD	%	%	%	%	%
Q 3. In my life, I experience the presence of the Divine (*i.e.*, God)	1	282	3,24	1,218	14,5%	9,9%	24,1%	40,1%	11,3%
	3	115	3,40	1,356	15,7%	7,8%	21,7%	30,4%	24,3%
	6	123	3,24	1,483	20,3%	13,0%	15,4%	25,2%	26,0%
	Total	520	3,27	1,315	16,2%	10,2%	21,5%	34,4%	17,7%
Q 4. My religious beliefs are what really lie behind my whole approach to life	1	282	2,77	1,304	25,5%	15,6%	22,0%	30,1%	6,7%
	3	115	2,73	1,398	27,8%	18,3%	19,1%	22,6%	12,2%
	6	123	2,64	1,444	33,3%	15,4%	17,1%	22,0%	12,2%
	Total	520	2,73	1,357	27,9%	16,2%	20,2%	26,5%	9,2%
Q 5. I try hard to carry my religion over into all other dealings in life	1	281	2,79	1,330	27,4%	12,5%	20,6%	33,1%	6,4%
	3	115	2,90	1,516	29,6%	12,2%	14,8%	25,2%	18,3%
	6	123	2,74	1,481	31,7%	15,4%	14,6%	23,6%	14,6%
	Total	519	2,80	1,408	28,9%	13,1%	17,9%	29,1%	11,0%

ity by a separate "subscale"[24], therefore, analyses with student data were also performed by subscales in separate models.

The results show a rather low level of religiosity (ORA, NORA and IR) among Croatian medical students, especially bearing in mind that, according to the Croatian Statistical Yearbook, 86% of the Croatian population declares themselves as Roman Catholics, while around 4% as atheists[27]. It is hard to interpret our data, but one could assume that at the student age (18 to 24 years in our sample) other values become more important so students estrange themselves from traditional behavior. Religious denomination as a data fact was not included in the questionnaire so no presumptions should be made for our sample. Regarding participants' gender, even though it is generally considered, and proven in literature, that women are more religious than men[1,4], our results did not confirm such findings. Similar results were shown by the study of Dilber et al. with nursing students of similar age[28].

Regarding religiousness among young people in general, several studies have already been conducted in Croatia, showing a gradual decrease of religiousness with their age[17,18]. For example, a 5-item *Short Scale of Religiousness* has been developed in Croatian language and validated on a sample of 3678 adolescents proving good psychometric properties[17]. Another research, where the same, previously mentioned religiousness scale was used, primarily focused on college students sexual risk behavior[29]. However, relatively little research has been conducted regarding religiosity or spirituality in health research studies in Croatia. Hitherto, research has been performed on the relation of patient's religiosity/spirituality and mental health only in specific population samples. Such studies include the use of the *Spiritual Wellbeing Scale* which was administered among war veterans[19] and the *Santa Clara Strength of Religious Faith Questionnaire* which was used in research among breast cancer patients[20]. Nonetheless, prior to its validation, DUREL Questionnaire was used in studying the relation of religiosity and spirituality to the personality and recovery from depression in Croatia[7].

None of these studies were performed on youth participants (late adolescents or student population) even though it is to assume that adolescent age, being turbulent and demanding, implies a higher suicidality risk and risk of other psychiatric disorders as well as the acknowledged fact that the likelihood of common mental disorders generally starts in childhood or adolescent years[11]. Data from other countries indicate that religiosity and spirituality in this age can represent a coping strategy and has been proved as a protective factor[10]. Other research suggests that lower spiritual beliefs are associated with greater alcohol and psychoactive substance abuse[30]. Furthermore, Wong, in his systematic research, quotes that most studies (90%) showed that higher levels of religiosity/spirituality were associated with better mental health in adolescents. This relationship was generally stronger or more unique for males and older adolescents than for females and younger adolescents[12]. Another study concluded that both public and private religiosity was protective against cigarettes, alcohol, and marijuana usage[31]. However, data are not always so affirmative; other research results demonstrated a modest positive or, in some cases, negative association between religious service attendance or youth group participation and anxiety in mid-adolescence[32]. In the TRAILS Study, also, hardly any associations between religiosity and mental health in a clinical cohort of preadolescents up to adolescence was found[33].

Our study has some limitations. Firstly, the sample was collected on one out of five Croatian medical schools. Secondly, students generally come from one area of Croatia (the capital and its surroundings) which could affect the generalizability of data and thirdly, test-retest reliability was not assessed. However, the scale shows good properties in Croatian adolescent population and, given the prevalence and importance of religiosity in general Croatian population, it is reasonable to consider performing further studies using DUREL-hr questionnaire.

Conclusion

The Croatian version of DUREL questionnaire, DUREL-hr, is a valid and reliable instrument suitable to use among Croatian speaking participants. Authors hope that the availability of such brief but comprehensive tool can add to the research field on the relationship between religiousness and health in Croatia, especially in turbulent, adolescent years.

Conflict of interest: None to declare.

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VALIDACIJA HRVATSKE VERZIJE DUKE INDEKSA RELIGIOZNOSTI (DUREL-HR) MEĐU STUDENTIMA MEDICINE

SAŽETAK

Cilj ovog rada je bio prevesti i istražiti psihometričke osobine hrvatske verzije *Duke Religion Indexa* (DUREL-hr) te istražiti stanje religioznosti među studentima medicine različitih godina studija. Dobiveni su rezultati pokazali visoki stupanj interne konzistentnosti prevedenog upitnika (koeficijent alfa u rasponu od 0.883 za ukupnu skalu do 0.9398 za intrinzičnu pod-skalu) kao i rezultate stanja religioznosti među studentima medicine koji su usporedivi sa drugim istraživanjima religioznosti mladih u Hrvatskoj. DUREL-hr je pouzdan i valjan instrument, prikladan za korištenje u istraživanjima religioznosti u Hrvatskoj te se potiče njegova primjena u istraživanjima odnosa zdravlja i religioznosti.