

# PHYSICIANS' ATTITUDES TOWARD ADOLESCENT CONFIDENTIALITY SERVICES: SCALE DEVELOPMENT AND VALIDATION

## ODNOS ZDRAVNIKOV DO ZAUPNOSTI STORITEV PRI MLADOSTNIKI: OBLIKOVANJE LESTVICE IN PREVERJANJE

Vida JEREMIĆ STOJKOVIĆ<sup>1\*</sup>, Smiljana CVJETKOVIĆ<sup>2</sup>, Bojana MATEJIĆ<sup>2</sup>

<sup>1</sup>University of Belgrade, School of Medicine, Department of Humanities, Pasterova 2, 11000 Belgrade, Serbia

<sup>2</sup>University of Belgrade, Faculty of Medicine, dr Subotića starijeg 8, 11000 Belgrade, Serbia

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### ABSTRACT

#### Keywords:

adolescent, confidentiality, attitude of health personnel, psychometrics, primary healthcare, surveys and questionnaires

**Introduction:** Confidentiality is one of the oldest ethical principles in healthcare. However, confidentiality in adolescent healthcare is not a universally-accepted doctrine among scholars. The ethical acceptability of confidential services in adolescents' healthcare is based on perceptions of adolescent maturity and an appreciation of its importance to adolescents' access and utilization of healthcare services. Despite legal policies that promote adolescents' rights, physicians' attitudes toward adolescent confidentiality can be a determining factor in their ultimate decision to protect adolescents' confidentiality.

**Method:** A new Attitude towards Adolescent Confidentiality Scale was developed based on the results of a qualitative interview study. This new instrument was administered to a sample of 152 physicians working at school pediatric and gynecology departments in 13 primary healthcare institutions in Belgrade. Principal component analysis was applied to determine the main components of the scale. Reliability was assessed by calculating Cronbach alpha and mean inter-item correlations.

**Results:** Psychometric analysis of the final 19-item version of the scale showed a high level of reliability (Cronbach alpha of 0.83). Principal component analysis showed four components, which present subscales of the instrument: Confidentiality in clinical situation, importance of confidentiality, Adolescent maturity, and Communication with parents.

**Conclusions:** The instrument showed satisfactory levels of reliability and validity. The results of the scale dissemination may be a valuable tool for needs assessment for future educational interventions and training programs that will raise physicians' awareness of the importance of adolescent confidentiality.

### IZVLEČEK

#### Ključne besede:

mladostnik, zaupnost, odnos zdravstvenega osebja, psihometrija, primarno zdravstveno varstvo, ankete in vprašalniki

**Uvod:** Zaupnost je eno najstarejših etičnih načel v zdravstvenem varstvu. Vendar zaupnost pri zdravstvenem varstvu mladostnikov med strokovnjaki ni splošno sprejeta doktrina. Etična sprejemljivost zaupnih storitev pri zdravstvenem varstvu mladostnikov temelji na dojetju zrelosti mladostnikov in priznavanju njene pomembnosti za dostop mladostnikov do storitev zdravstvenega varstva in njihovo uporabo. Kljub pravnim politikam, ki spodbujajo pravice mladostnikov, je lahko odnos zdravnikov do zaupnosti mladostnikov odločilni dejavnik pri končni odločitvi za zaščito zaupnosti mladostnikov.

**Metoda:** Na podlagi rezultatov kvalitativne raziskave z intervjuji smo oblikovali novo lestvico odnosa do zaupnosti mladostnikov. Novi instrument smo izvedli v vzorcu 152 zdravnikov, zaposlenih v pediatričnih in ginekoloških oddelkih v 13 ustanovah primarnega zdravstvenega varstva v Beogradu. Za določitev glavnih komponent lestvice smo opravili analizo glavnih komponent. Zanesljivost smo ocenili z izračunom koeficienta Cronbach alfa in povprečnih korelacij med postavkami.

**Rezultati:** Rezultati psihometrične analize končne različice lestvice z 19 spremenljivkami so pokazali visoko raven zanesljivosti (koeficient Cronbach alfa 0,83). Analiza glavnih komponent je pokazala štiri komponente, ki predstavljajo pomožne lestvice instrumenta: zaupnost v posebnih kliničnih stanjih, pomembnost zaupnosti pri zdravstvenem varstvu mladostnikov, zrelost mladostnikov in starševska odgovornost ter komunikacija in skrivnosti med mladostniki in starši.

**Sklepi:** Instrument je pokazal zadovoljive ravni zanesljivosti in veljavnosti. Rezultati razširjanja lestvice so lahko dragoceno orodje za oceno potreb pri prihodnjih izobraževalnih intervencijah in programih usposabljanja, ki bodo zdravnike ozaveščali o pomembnosti zaupnosti mladostnikov.

\*Corresponding author: Tel. + 381 606 361 076; E-mail: [vidajeremic@yahoo.com](mailto:vidajeremic@yahoo.com)

## 1 INTRODUCTION

Confidentiality - the obligation of a healthcare professional not to disclose the information obtained within a confidential relationship to anyone without the patient's permission - is one of the oldest ethical principles in healthcare (1). However, confidentiality in adolescent healthcare is not a universally-accepted doctrine among physicians (2). The acceptability of providing confidential services in adolescent healthcare depends on physicians' perception of adolescent maturity and apprehension of the importance of confidentiality with respect to adolescents' access and utilization of healthcare services. A widely accepted psychological study from 1982 demonstrated that most adolescents reach the formal operational stage of cognitive development by mid-adolescence, and these studies concluded that adolescents' decision-making capacity is much like that of adults (3). However, more recent psychology and neuroscience findings suggest that the social and emotional competences of adolescents (such as impulse control and ability to appreciate long-term consequences) are still developing, rendering adolescents' judgments immature and susceptible to risky behavior (4). These findings led some to conclude that adolescents' immature judgments impede them from making adequate healthcare decisions, and decisional authority should be shifted back to parents (5, 6). This negative assessment of the maturity of adolescent judgment represents the main argument against confidentiality policies (5, 6). However, empirical data suggest that adolescents would forgo healthcare when confidentiality is not guaranteed, implying that confidentiality is a key factor in adolescents' utilization of healthcare (7, 8). These findings can be explained by psychoanalytic theories which emphasize separation from parents as a key step to accomplish individuation processes (9, 10). The need to keep secrets from parents is associated with the process of separation, and this is very common in older adolescents on the path to emotional autonomy and independence (11).

Despite contradictory views on the issue of adolescents' rights (12), many European countries have implemented legal regulations that allow confidential services for minors of a certain age, or minors who possess adequate decision-making capacity (13). European countries lack evidence regarding physicians' practice of respect for confidentiality in adolescent healthcare. Studies from Lithuania, Belgium and Spain show that many physicians are reluctant to spend time alone with adolescents, and that they usually tend to inform parents without asking adolescents for permission (14-16). Physicians' attitudes can be a determining factor in their final decision to protect adolescents' confidentiality, despite legal policy that promotes adolescents' rights (14-16). Understanding the attitudes and beliefs of physicians who provide healthcare to adolescents may help tailor policies for

specific socio-cultural milieus. Although several studies aimed to explore physicians' attitudes toward the adolescent right to confidentiality in healthcare (14-19), to our knowledge no psychometrically validated instrument was developed and implemented.

The aim of this study was to develop and validate a comprehensive instrument for measuring physicians' attitudes related to the issue of adolescent confidentiality with an emphasis on reproductive healthcare. A psychometrically valid instrument could be used to evaluate the physician's sensitivity and readiness to promote adolescent healthcare by respecting adolescents' confidentiality rights. The results of such evaluations would represent valuable information for enhancing the education and training of physicians.

## 2 METHODS

### 2.1 Study Design and Sampling

A cross-sectional survey was conducted in the period from November 2017 to August 2018. Data were collected from a sample of physicians working at school pediatric departments and gynecology departments (from the age of 15 adolescent girls are referred to the gynecology department at the primary care level) in 13 primary healthcare institutions in the territory of Belgrade, Serbia. There are 16 primary healthcare institutions in Belgrade, but 3 institutions declined to participate in the study. We chose to conduct our study at the primary healthcare level because it has the main role in health prevention and promotion. Primary care physicians are in a position to establish relationships of trust with adolescent patients, and to influence them to seek advice and care for sensitive health issues such as sexuality and reproductive care. The study protocol was approved by the Ethics Committee of the Faculty of Medicine, University of Belgrade (approval number: 29/ VI-1).

### 2.2 Data Collection

Participants were approached at their work offices by the principal researcher after receiving approval from the heads of the departments. Questionnaires were self-administered and anonymous. The survey took approximately 10 minutes to complete. All participants signed informed consent sheets prior to the survey.

### 2.3 Instrument Development

The items developed for the scale were based on a qualitative interview study exploring primary care physicians' knowledge, beliefs, attitudes and experiences regarding their legal obligation to protect adolescents' confidentiality in healthcare (20). The qualitative study included 12 interviews with primary care pediatricians

and gynecologists. Some of the categories obtained by inductive qualitative content analysis were the basis for the key constructs in the study of confidentiality attitudes and main domains in this survey's questionnaire. Categories that served as a basis for questionnaire development were: respect for the person, condition for trust, clinical situations where confidentiality is most important, parent-adolescent sexuality communication, decision-making capacity of adolescents, and parental responsibility. In accordance with the relevant literature on adolescent confidentiality, it was expected that appreciation of the main reasons for confidentiality (respect for autonomy and establishing doctor-patient trust), a positive attitude toward confidentiality in specific clinical situations, positive views on the maturity of adolescent judgment, and recognition of the adolescent's need to keep their reproductive and sexual health problems private from parents, would contribute to an overall positive attitude toward respecting adolescents' right to confidentiality in reproductive healthcare (21, 22). Items of the questionnaire were partially formulated employing phraseology from physicians interviewed to generate a richer understanding of target respondents.

Content validity of the instrument was established in the following steps. First, the main concepts were defined based on a literature review and the results of the qualitative study. Second, a panel of 5 experts in a content domain (one expert from each of the fields of psychology and public health) were sent a questionnaire and were invited to evaluate the items. Experts were presented with constructs and asked to match items with a corresponding construct. They confirmed that the instrument items were relevant, accurate, and adequately represented the theoretical constructs that the questionnaire was designed to measure. Third, the questionnaire was piloted in a group of 10 primary healthcare physicians to assess the intelligibility of the questions. The instrument was suitable for all participants, so no adjustments were necessary.

The final version of The Attitudes toward Adolescent Confidentiality Scale consisted of 20 statements (items of the scale) which represent various constructs related to the right to confidentiality in adolescent healthcare, evaluated on a 5-point agreement scale (from 1 "Strongly disagree" to 5 "Strongly agree") (Table 1). Reverse coding was applied for negatively connoted statements (A8, A9, A10 and A20 in the Table 1.). The attitude score was calculated by summation of points for each item.

#### 2.4 Psychometric Evaluation of the Instrument

Principal component analysis with varimax rotation was applied to determine the main components (factors) representing constructs that the scale is supposed to investigate, and items with factor loadings less than 0.3

were removed. Because no validated scales of similar constructs were found, construct validity was assessed by calculating the correlation coefficients between each pair of subscale scores. The Kaiser-Meier-Olkin measure of sampling adequacy and Bartlett test of sphericity were calculated.

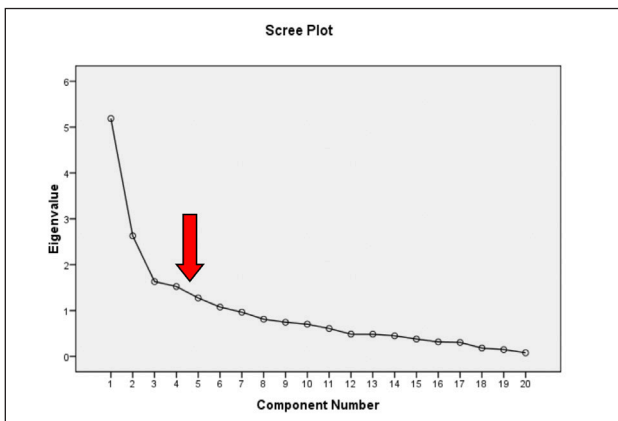
The reliability of the scale was assessed by calculating the Cronbach alpha coefficients and mean inter-item correlations. Cronbach alpha was calculated for each factor, too. Test-retest reliability analysis was impractical because Serbian primary healthcare physicians were reluctant to complete the survey again due to the ongoing significant work overload in Serbia. Furthermore, a split-half reliability test was performed and Spearman-Brown coefficient calculated.

Descriptive statistics were applied to determine the sample characteristics. Mean scores for the total scale and sub-scales were calculated. Mean scores for individual items of the scale were calculated to assess the importance our respondents attach to particular constructs related to adolescent confidentiality (23). In all analyses  $p < 0.05$  was considered statistically significant. All analyses were performed using the statistical program IBM SPSS Statistics 20 (SPSS).

### 3 RESULTS

The total number of physicians who completed the survey was 152 (78 from the school pediatric department and 74 from the gynecology department), reflecting a response rate of 80.0% (the total number of physicians working at the school pediatrics and gynecology departments during the survey period was 190). The majority of participants were female (83.6%), with the average age in the sample being  $50.8 \pm 9$  years.

The Kaiser-Meyer-Olkin measure value ( $KMO=0.77$ ) and the Bartlett's test of sphericity result ( $\chi^2=1320.80$ ,  $p<0.001$ ) indicated the adequacy of the data for factor analysis. Principal component analysis with varimax rotation of all factors that achieved eigenvalues greater than 1 was performed for the 20-item scale. This resulted in 6 factors with eigenvalues ranging from 5.19 to 1.08, accounting for 66.63% of the item variance. However, the scree plot suggested a four-factor solution (Figure 1), so additional principal component analysis was performed with four fixed factors, accounting for 54.87% of the item variance. Of the 20 total items, one did not show significant factor loading (24), and was excluded from the scale (A20 in Table 1-The family should be involved in making important decisions regarding health of all its members). Factor loadings for 20 items after varimax rotation are presented in Table 1.



**Figure 1.** Inflection on the scree plot justifying the 4-factor solution.

**Table 1.** Factor loadings after varimax rotation and Kronbach alphas for the final 19-item scale.

Scale items	Factor I	Factor II	Factor III	Factor IV	Kronbach alpha if item was deleted
A1- Adolescent won't share sensitive information regarding sexual and reproductive health with physician if they fear that parents might find out.				0.692	0.836
A2- With confidentiality guaranteed adolescent patients will more likely seek medical help, speak openly about risky behaviors and continue with the treatment of reproductive health issues.		0.616			0.838
A3- Confidentiality is important for establishing a relationship of trust between the physician and the adolescent patient.		0.843			0.833
A4- By respecting confidentiality a physician shows respect for the adolescent patient's person.		0.904			0.831
A5- Confidentiality is the ethical duty of every physician.		0.822			0.833
A6- A 15-year-old adolescent is capable of independent decision-making.			0.729		0.826
A7- A 15-year-old adolescent is capable of independently consenting to a medical procedure.			0.722		0.828
A8- Adolescents are not able to adequately predict the long-term consequences of their decisions.			0.461		0.842
A9- Adolescents don't possess adequate competence for decision-making.			0.531		0.843
A10- Parents are legally responsible for their children until the age of majority, therefore they have a right to be informed about all facts regarding their child's health.			0.546		0.839
A11- Adolescents communicate poorly with their parents about sexuality and reproductive health problems.				0.682	0.839
A12- Parents have difficulty accepting their adolescent children's emerging sexuality.				0.673	0.841
A13- Adolescents should be provided confidential counseling on sexual and reproductive health.	0.344				0.836
A14- Adolescents should be provided confidential contraceptive pill prescriptions.	0.560				0.825
A15- Adolescents should be provided confidential diagnostics of STDs.	0.882				0.819
A16- Adolescents should be provided confidential treatment of STDs.	0.909				0.816
A17- Adolescents should be provided confidential pregnancy testing and prenatal care.	0.819				0.814
A18- Adolescents should be provided confidential abortion service.	0.745				0.818
A19- Adolescents should be provided confidential treatment of ovarian cysts.	0.649				0.830
A20- The family should be involved in making important decisions regarding the health of all its members.*	0.002	0.228	0.288	0.287	

\*The item did not show significant factor loadings greater than 0.3 and was excluded from the final scale.

Factor I - Confidentiality in specific situations, Factor II - Importance of confidentiality, Factor III - Adolescent maturity, Factor IV - Communication with parents

The items that cluster around the same factors suggest that factor 1 represents Confidentiality in specific situations, factor 2 represents the Importance of confidentiality, factor 3 represents Adolescent maturity, and factor 4 represents Communication with parents. Table 2 shows the correlations among the four subscale scores.

Because subscales measure different constructs related to the issue of adolescent confidentiality, correlations between subscales were mostly significant but moderate, as expected (Pearson correlation coefficients ranging from 0.07 to 0.42), implying that subscales are related but not redundant. Confidentiality in specific situations and the Importance of confidentiality were significantly associated with all other subscales. The only non-significant correlation was between the third (Adolescent maturity) and the fourth (Communication with parents) scales.

**Table 2.** Correlations among 4 subscale scores.

	1	2	3
2	.24**		
3	.42**	.17*	
4	.20*	.35**	.07

\*Correlation is significant at the 0.05 level

\*\*Correlation is significant at the 0.01 level

1 - Confidentiality in clinical situations

2 - Importance of confidentiality

3 - Adolescent maturity

4 - Communication with parents

Reliability for the final 19-item version of the scale was assessed. Cronbach alpha for the overall scale was 0.84. The mean inter-item correlation for 19 items was 0.20, which falls within the acceptable range of 0.15-0.50 (25). The Spearman-Brown coefficient associated with the items was 0.895, which is acceptable, confirming the scale's reliability.

**Table 3.** Characteristics of 4 subscales.

Subscale	Number of items	Mean $\pm$ SD (Range)	Tertile	Cronbach alpha
1. Confidentiality in specific situations	7	23.51 $\pm$ 6.725 (7-35)	Middle	0.863
2. Importance of confidentiality	4	18.26 $\pm$ 2.664 (4-20)	Third	0.830
3. Adolescent maturity	5	11.59 $\pm$ 2.993 (5-25)	First	0.639
4. Communication with parents	3	10.74 $\pm$ 2.038 (3-15)	Middle	0.584

Table 3 lists four subscales with their labels, number of items, average scores and Cronbach alphas. The first two factors had Cronbach alphas that exceeded 0.80. The third factor (Adolescent maturity) had a Cronbach alpha of 0.64, which is considered satisfactory in exploratory research (26), while the fourth factor had an alpha of 0.58 (Communication with parents). Since the fourth factor had only three items, its reliability was additionally tested by calculating mean inter-item correlation, which was within the acceptable range (0.33).

The average total score on the attitude scale in the sample was 71.18 $\pm$ 10.742, belonging to the middle tertile of the score range; this can be interpreted as a moderate attitude toward confidentiality in adolescent healthcare. The average scores for subscales are presented in Table 3. For the first and fourth subscale the average scores also belong to the middle tertile, reflecting a moderate attitude, while for the third subscale (Adolescent maturity) the average score belongs to the lower tertile, reflecting a negative attitude. For the second subscale (Importance of confidentiality) the average score belongs to the higher tertile, reflecting a highly positive attitude.

Mean scores for individual items of the scale are presented in Table 4. The highest scores were observed for all items in the Importance of confidentiality subscale, implying the respondents perceived the importance of their ethical duty. Moreover, confidentiality in counseling on sexual and reproductive health was perceived as highly important, too. However, the lowest scores were observed for items from the Adolescent maturity subscale (A6, A7, A8 and A10 at the Table 4.).

**Table 4.** Respondents' evaluations of the The Attitudes toward Adolescent Confidentiality Scale items.

Item	Mean score ± Standard deviation	Min-Max	Skewness	Kurtosis
A1- Adolescent won't share sensitive information regarding sexual and reproductive health with physician if they fear that parents might find out.	3.65±1.07	1-5	-0.594	-0.244
A2- With confidentiality guaranteed adolescent patients will more likely seek medical help, speak openly about risky behaviors and continue with the treatment of reproductive health issues.	4.24±0.97	1-5	-1.666	2.693
A3- Confidentiality is important for establishing a relationship of trust between the physician and the adolescent patient.	4.65±0.76	1-5	-2.941	10.091
A4- By respecting confidentiality a physician shows respect for the adolescent patient's person.	4.63±0.79	1-5	-3.008	10.275
A5-Confidentiality is the ethical duty of every physician.	4.74±0.72	1-5	-3.612	14.267
A6- A 15-year-old adolescent is capable of independent decision-making.	2.47±0.98	1-5	0.202	-0.226
A7- A 15-year-old adolescent is capable of independently consenting to a medical procedure.	2.31±1.01	1-5	0.319	-0.650
A8- Adolescents are not able to adequately predict the long-term consequences of their decisions.	1.93±0.82	1-5	0.782	0.737
A9- Adolescents don't possess adequate competence for decision-making.	3.05±0.89	1-5	0.025	0.119
A10- Parents are legally responsible for their children until the age of majority, therefore they have a right to be informed about all facts regarding their child's health.	1.84±0.97	1-5	0.905	0.090
A11- Adolescents communicate poorly with their parents about sexuality and reproductive health problems.	3.64±0.79	1-5	-0.384	0.212
A12- Parents have difficulty accepting their adolescent children's emerging sexuality.	3.45±0.87	1-5	-0.391	0.126
A13- Adolescents should be provided confidential counseling on sexual and reproductive health.	4.47±0.80	1-5	-1.862	4.241
A14- Adolescents should be provided confidential contraceptive pill prescriptions.	3.80±1.22	1-5	-0.795	-0.368
A15-Adolescents should be provided confidential diagnostics of STDs.	3.74±1.29	1-5	-0.677	-0.823
A16-Adolescents should be provided confidential treatment of STDs.	3.59±1.33	1-5	-0.555	-0.962
A17-Adolescents should be provided confidential pregnancy testing and prenatal care.	2.78±1.50	1-5	0.245	-1.315
A18- Adolescents should be provided confidential abortion service.	2.33±1.36	1-5	0.679	-0.733
A19- Adolescents should be provided confidential treatment of ovarian cysts.	2.80±1.46	1-5	0.244	-1.297

### 3.1 Summary of Factors

The first factor included items related to the attitude of respect for confidentiality in specific clinical situations. Its reliability was very good (Table 3). The mean score on this subscale was moderate, with higher scores for items related to preventive health measures (counseling and contraception) (Table 3). Lower scores were observed on items related to abortion and pregnancy.

The second factor covered items related to the perception of the importance of confidentiality in adolescent healthcare (ethical duty, respect for persons, condition for trust and condition for healthcare service access). This subscale also had very good reliability (Table 3).

Respondents' scores on this subscale were the highest scores, indicating they had a positive attitude towards the reasons that support confidentiality policies (Table 3). The third subscale included items related to the maturity of adolescents and parental responsibility. This subscale had satisfying reliability (Table 3). A negative average attitude was found on this subscale (Table 3).

The fourth factor covered items related to the issues of communication and secrecy between adolescents and parents regarding sexuality and reproductive health. Communication with parents subscale had a Cronbach alpha below the acceptable level (Table 3), but its mean inter-item correlation was sufficient to keep this subscale in the instrument. Further work with developing the

concept of secrecy in the adolescent-parent relationship and adding more items to this subscale are needed to improve this domain of the scale, and only the total score should be used for the time being. Respondents' scores on this subscale were moderate (Table 3).

## 4 DISCUSSION

### 4.1 Summary of Main Findings

In this article we describe the development and validation of a research instrument aimed at measuring physicians' attitudes towards adolescent confidentiality in healthcare. This study used a systematic approach to develop the instrument, and thoroughly analyzed the instrument's reliability and validity. The overall reliability of the 19-item Attitudes towards Adolescent Confidentiality Scale was acceptable, showing high consistency of the total scale (Cronbach alpha of 0.83). Principal component analysis showed four components, which present subscales of the instrument: Confidentiality in a specific situation, the Importance of confidentiality, Adolescent maturity, and Communication with parents (Table 3).

The developed scale also showed a satisfying level of construct validity, given that the subscales correlated in expected ways (Table 2). Physicians' higher acceptance of confidentiality in specific medical situations was associated with stronger beliefs that confidentiality is important, as well as with more positive assessments of adolescent maturity and decision-making capacity. Also, higher acceptance of the importance of confidentiality was associated with stronger belief that adolescents keep secrets from parents and do not want parents to find out. As expected, the attitude toward adolescent maturity and parental responsibility was not significantly correlated to recognition of adolescents' need to keep their sexual and reproductive health secret from parents, since those subscales present significantly different constructs. A negative attitude toward the maturity of adolescents' judgment and a positive attitude toward parental authority in healthcare decision-making underlie the strongest arguments against adolescent confidentiality policies in the literature (5, 6). Appreciation of the fact that adolescents would rather forgo needed sensitive healthcare because of the fear that parents might find out led to the formulation of confidentiality policies which aim to increase adolescents' access to healthcare services (27-29).

The surveyed physicians demonstrated a moderate overall attitude toward the adolescent's right to confidentiality in healthcare, which was expected in Serbian physicians, given that the general attitude toward children's rights in the general Serbian population is predominantly negative (30). The moderate attitude reflects physicians' doubts and confusion and suggest that confidentiality protection in adolescent healthcare may not be consistently

implemented. This result is in line with the empirical evidence showing that the socio-cultural context strongly influences the implementation of minors' rights (31). In societies with dominant patriarchal cultures, physicians are less inclined to promote children's autonomy in healthcare (32). An inter-cultural comparison of results would be important in future explorations of socio-cultural influences on the implementation of minors' participation rights in healthcare. Empirical evidence from the U.S. shows that despite recommendations and legal requirements, less than half of adolescents aged 15-17 spent some time alone with a physician during a visit (33, 34), implying that the importance of adolescent confidentiality is not universally accepted.

As expected, scores on the subscale Confidentiality in specific situations were higher for items related to preventive health measures (counseling and contraception) (Table 3). Lower scores were observed on items related to abortion and pregnancy, which was expected and consistent with the results of other studies that suggest that a significant number of physicians believe that adolescent pregnancy and abortion should never be kept confidential and parents should be included in making decisions in these situations (18, 35). Respondents' scores on the Importance of confidentiality were the highest scores (Table 3), which is in line with the results of other studies where a majority of physicians agreed with the importance of adolescents' right to confidentiality (18, 35). Despite recognizing its importance, the physicians surveyed inconsistently maintained confidentiality in their practice (18, 35). A negative average attitude was found on the Adolescent maturity subscale, which implies that many physicians disagree with legal regulations that allow 15-year-old patients to independently consent to medical procedures (Table 3). Similar findings were found in a survey by Riley et al., where respondents, although they agreed that confidentiality should be an adolescent's right, were less confident that adolescents possess adequate maturity to independently consent to care for sensitive medical issues (18). Healthcare practitioners often have a patronizing view of adolescent patients, believing they are immature and in need of protection (36). These findings reflect the main dilemma surrounding the issue of confidentiality in adolescent healthcare: Are adolescents mature enough to make sound autonomous decision in healthcare? We argue that this question should be put aside in the field of reproductive health, and the emphasis be put on public health justification that is based on the health benefits of adolescents getting needed medical help. Physicians' negative attitude toward adolescent maturity jeopardizes adolescents' access to healthcare, especially in areas of reproductive and mental health. Thus it is important to address physicians' beliefs and prejudices in order to tailor educational interventions.

Respondents' scores on the Communication with parents subscale were moderate, which indicates a lack of consensus on this issue among the population of surveyed physicians (Table 3). However, the results of numerous studies with adolescents showed that many adolescents value confidentiality highly in healthcare and prefer that parents not be informed about their reproductive health issues (contraception, sexually transmitted diseases) (7, 33, 37, 38). Insisting on parental notification would only discourage adolescents from seeking necessary medical care.

#### 4.2 Limitations of the Study

There are important limitations to this study. First of all, our sample of primary care physicians was small, although sufficient for running principal component analysis (39). For the purpose of exploratory research, we decided to include only physicians working in Belgrade, and their number was not large. Still, data collection took several months. Excess workload and continued health professional emigration that is going on in Serbia were the main obstacles to instrument administration, and this also precluded test-retest analysis. The scale should be validated on a larger sample of physicians, since skewness and kurtosis suggest that distribution in our sample was not normal (Table 4). Physicians from both urban and rural areas should be included to examine the influence of geographic and socio-cultural factors on physicians' acceptance of minors' rights in healthcare. Furthermore, it would be useful to validate translated versions of the instrument in different countries and cultures. We invite the broader professional community to adapt and validate the scale for their populations. Secondly, the majority of participants in our sample were females (83.6%). According to the report of The Statistical Office of the Republic of Serbia, gender ratio in the total sample of Serbian medical doctors is 2:1 (for female and male doctors, respectively) (40). According to the World Health Organization's evaluation of primary healthcare in Serbia, primary care is dominantly provided by women (41). In this evaluation 89% of respondents were women. So the sample in our study adequately represents the gender ratio of primary healthcare in Serbia.

Thirdly, we did not include private healthcare institutions. Future studies are needed to explore differences in attitudes and approaches in adolescent healthcare between public and private clinics. Fourthly, our sample was sufficient for the principal component analysis as an initial exploration of the instrument's factor structure. Confirmatory factor analysis in a different sample is needed to evaluate the factor structure.

## 5 CONCLUSIONS

The Attitudes toward Adolescent Confidentiality Scale includes four sub-scales to assess physicians' general attitudes toward confidentiality in adolescent healthcare services and to discern their beliefs and opinions regarding confidentiality as an ethical principle in general, confidentiality in specific medical situations, maturity and competence of adolescents and the issue of communication and secrecy between adolescents and parents. This instrument can be used as a tool for assessing physician's acceptance of legal requirements for minors' confidentiality rights in national samples. Moreover, dissemination of results of the scale may contribute to needs assessments for future educational interventions and training programs, and possibly enhance physicians' appreciation of the importance of adolescent confidentiality and their preparedness to protect adolescents' rights in healthcare. Finally, respondents may have reflected on their own understandings and attitudes while responding to the scale questions, which is itself a benefit and may increase receptiveness to additional education.

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## CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

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## ETHICAL APPROVAL

The study was approved by the Ethics Committee of the Faculty of Medicine, University of Belgrade (approval number: 29/VI-1).



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