

# Health literacy and socioeconomic characteristics among older people in transitional Kosovo

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## ABSTRACT (ARIAL, BOLD, 11 FONT, LEFT ALIGNED, CAPS)

### ABSTRACT

**Aims:** Health literacy among older people has received little attention in transitional countries of Southeast Europe. Our aim was to assess the level and socioeconomic correlates of health literacy among older people in Kosovo, a post-war country in the Western Balkans.

**Study design:** Cross-sectional study.

**Place and duration of study:** Kosovo, between January-March 2011

**Methods:** This nationwide survey, conducted in Kosovo in 2011, included 1753 individuals aged  $\geq 65$  years (886 men, 867 women; mean age  $73.4 \pm 6.3$  years; response rate: 77%). Participants were asked to assess, on a scale from 1 to 5, their level of difficulty with regard to *access, understanding, appraisal, and application* of health information. Subscale scores and an overall health literacy score were calculated for each participant. Information on socioeconomic characteristics was also collected.

**Results:** Subscale scores of health literacy were strongly correlated with each-other (range of Spearman's rho: 0.8-0.9). Mean values of the overall health literacy scores were significantly higher in men, urban residents, married individuals, the highly educated, and the better off participants.

**Conclusions:** This may be the first report from the Western Balkans addressing health literacy in a population-based sample. Future studies in Kosovo and other settings in the region should provide further insight into the magnitude and socioeconomic determinants of health literacy which is an under-researched topic in countries of Southeast Europe.

**Keywords:** aging; health information; health literacy; Kosovo; older people.

**(Note: 1. Case Reports** should follow the structure of Abstract, Introduction, Presentation of Case, Discussion, Conclusion, Acknowledgements, Competing Interests, Authors' Contributions, Consent (where applicable), Ethical approval (where applicable), and References plus figures and/or tables. Abstract (not more than 250 words) of the Case reports should have the following sections: Aims, Presentation of Case, Discussion and Conclusion. Only Case Reports have word limits: Papers should not exceed 2000 words, 20 references or 5 figures. Other Type of papers have no word limits.

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31 Contributions, Consent (where applicable), Ethical approval (where applicable), and References plus  
32 figures and/or tables.)  
33  
34

## 35 1. INTRODUCTION

36

37 Access to better information is required to support people's participation and enable them  
38 making their own health choices [1]. The decision-making process is impacted by people's  
39 health competencies, which is linked to literacy, and entails the knowledge, motivation and  
40 competence to access, understand, appraise and apply information to make decisions in  
41 everyday life in terms of healthcare, disease prevention, and health promotion during the  
42 course of life. Various personal characteristics, demographic and social factors may as well  
43 have an impact on health literacy [2]. There are indications that low literacy leads to marked  
44 variation in an individual's ability to obtain relevant health information, and in their  
45 opportunity and capability to apply the information in interactions with health professionals  
46 and health care services [3,4]. Consequently, low health literacy may lead to worse health  
47 outcomes, ranging from worse self-rated health status, longer hospitalization and higher use  
48 of healthcare services resulting in higher healthcare costs [2,5], difficulties to follow medical  
49 instructions [6-7], impaired ability to navigate the health system [8] and lower participation in  
50 screening programs [9].

51 Health literacy and its association with socio-demographic and socioeconomic factors have  
52 been mainly studied in USA and Canada and more recently in Australia, Asia and Europe  
53 [2,10].

54 On the other hand, data on health literacy in former communist countries of the Western  
55 Balkans including Kosovo are scarce. Kosovo is the newest state in Europe struggling to  
56 establish a functional democracy after the breakdown of former Yugoslavia and the  
57 subsequent war in the region. In the framework of a population-based survey, our aim was to  
58 assess the level and socioeconomic correlates of health literacy among older people in  
59 Kosovo in terms of accessing, understanding, appraising and applying the information  
60 related to health care, disease prevention and health promotion.  
61

## 62 2. Material and methods

### 63 2.1 Study population

64

65 A nation-wide cross-sectional study among individuals aged 65 years or older was  
66 conducted in Kosovo in 2011. The study population and sampling techniques have been  
67 described in detail elsewhere [11]. Of the initial 2400 individuals targeted for inclusion, 135  
68 participants were ineligible and further 375 individuals refused to participate, leading to 1890  
69 study participants [11]. Of these, 137 participants were excluded from the current analysis  
70 due to incomplete information regarding health literacy. Therefore, this report is based on  
71 1753 individuals, with an overall response rate of 77.4% (1753/2265).  
72

### 73 2.2 Data collection

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75 A structured interviewer-administered questionnaire (including 25 items) was used to assess  
76 four dimensions of health literacy: access (5 items), understanding (7 items), appraisal (8  
77 items) and application (5 items) of health information in three different situations/domains:  
78 health promotion, disease prevention and cure of disease. The health literacy instrument  
79 employed in the current study was developed in the framework of a large EU supported  
80 project [2].

81 Participants were asked to assess, in a scale ranging from 1 (unable – implying least health  
82 literacy score) to 5 (without any difficulty – maximal health literacy score), their level of  
83 difficulty with regard to access/understanding/appraisal/application of health information.

84 The health literacy instrument was pre-tested in a sample of older people (N=38) attending  
85 primary health care services in Kosovo and Albania before conducting the current survey.

86 A full version of the 25-item instrument used for the assessment of health literacy in our  
87 study is presented in Appendix 1.

88 An overall health literacy score (overall index) was calculated for each participant ranging  
89 from 25 (least health literacy score) to 125 (maximal health literacy score). In addition, four  
90 subscale scores (domain indexes) were calculated in line with the four domains explored  
91 namely: access (range: 5-25), understanding (range: 7-35), appraisal (range: 8-40) and  
92 application (range: 5-25) of health information.

93 Information on socio-demographic (age and sex) and socioeconomic characteristics (place  
94 of residence, marital status, educational level, and self-perceived poverty) was also  
95 collected.

### 96 **2.3 Statistical analyses**

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98 Age-sex and place-of-residence standardized/weighted percentages and their respective  
99 95% confidence intervals (95% CIs) were calculated for the socioeconomic characteristics of  
100 study participants.

101 Cronbach's alpha, used to assess the internal consistency of the health literacy instrument,  
102 ranged from 0.90 to 0.94 for the subscale scores and the overall health literacy score.

103 Mann-Whitney test was used to compare mean values of health literacy scores by different  
104 categories of demographic and socioeconomic characteristics.

105 Spearman's correlation coefficient was used to assess the linear association between health  
106 literacy indexes (subscale scores).

107 General linear model was used to assess the association between the overall health literacy  
108 index and socio-demographic and socioeconomic factors. Age-adjusted and multivariable-  
109 adjusted mean values and their respective 95% CIs of the overall health literacy score  
110 according to different categories of the socioeconomic characteristics were calculated.

111 SPSS, version 15.0 was used for all the statistical analyses.

112

## 113 **3. RESULTS AND DISCUSSION**

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115 Mean age of participants (54% women) was 73.4±6.3 years. On average, participants had  
116 4.5 years of formal education, 62% resided in rural areas, and 48% regarded themselves as  
117 poor (Table1).

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120 **Table 1. Distribution of socioeconomic characteristics in a representative sample of**

121

**older people in Kosovo in 2011**

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Variable	Men (N=886)		Women (N=867)		Total (N=1753)	
	Number (percent)*	Standardized percentage (95% CI)†	Number (percent)	Standardized percentage (95% CI)	Number (percent)	Standardized percentage (95% CI)
<b>Age:</b>						
65-74 years	278 (31.4)	66.1 (65.7-66.4)	278 (32.1)	62.9 (62.5-63.3)	556 (31.7)	64.4 (64.1-64.6)
75-84 years	325 (36.7)	30.2 (29.9-30.6)	308 (35.5)	31.4 (31.1-31.8)	633 (36.1)	30.8 (30.6-31.1)
≥85 years	283 (31.9)	3.7 (3.6-3.9)	281 (31.9)	5.7 (5.5-5.9)	564 (32.2)	4.8 (4.7-4.9)
<b>Residence:</b>						
Rural	450 (50.8)	61.8 (61.4-62.2)	452 (52.1)	62.1 (61.7-62.4)	902 (51.5)	62.0 (61.7-62.2)
Urban	436 (49.2)	38.2 (37.8-38.6)	415 (47.9)	37.9 (37.6-38.3)	851 (48.5)	38.0 (37.8-38.3)
<b>Education:</b>						
0 years	236 (26.8)	17.2 (16.9-18.5)	540 (63.2)	48.6 (48.3-49.0)	776 (44.7)	34.0 (33.7-34.2)
1-8 years	476 (54.0)	60.5 (60.1-60.9)	297 (34.7)	48.7 (48.3-49.0)	773 (44.5)	54.2 (53.9-54.4)
≥9 years	169 (19.2)	22.3 (22.0-22.7)	18 (2.1)	2.7 (2.6-2.8)	187 (10.8)	11.9 (11.7-12.0)
<b>Marital status:</b>						
Married						
Not married	516 (59.1)	71.7 (71.3-72.1)	225 (26.4)	39.9 (39.6-40.3)	741 (42.9)	54.7 (54.4-55.0)
	357 (40.9)	28.3 (27.9-28.7)	628 (73.6)	60.1 (59.7-60.4)	985 (57.1)	45.3 (45.0-45.6)
<b>Self-perceived poverty:</b>						
Not poor	463 (53.6)	57.9 (57.5-58.3)	389 (45.6)	46.6 (46.3-47.0)	852 (49.6)	51.8 (51.5-52.1)
Poor	401 (46.4)	42.1 (41.8-42.6)	465 (54.4)	53.4 (53.0-53.7)	866 (50.4)	48.2 (47.9-48.5)

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124 \* Absolute numbers in the sample and column percentages (in parentheses). Discrepancies

125 in the totals are due to missing covariate values.

126 † Age- sex and-residence standardized percentages in accordance with the respective strata  
 127 weights in the sampling frame.

128  
 129 Mean overall and subscale health literacy scores were all significantly higher in men, urban  
 130 residents, married individuals, among those who had at least one year of formal schooling  
 131 and the better off participants (P<0.001 for all) [Table 2].

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**Table 2. Distribution of the overall health literacy score and subscale scores by socioeconomic characteristics\***

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Health literacy	Total	Sex		Age-group (years)		Residence		Education (years)		Marital status		Poverty level	
		Men	Women	65-74	≥75	Urban	Rural	0	≥1	Married	Not married	Poor	Not poor
<b>Overall score</b>	76.5 ±	83.6 ±	69.3 ±	89.2 ±	70.6 ±	70.4 ±	82.9 ±	62.0 ±	88.2	84.6 ±	70.1 ±	80.7	72.4 ±
	29.9 <sup>†</sup>	29.2	28.9	26.9	29.4	28.3	30.3	25.6	±	28.1	29.6	±	29.4
<b>Access</b>	15.6 ±	16.9 ±	14.2 ±	18.1 ±	14.4 ±	14.3 ±	16.9 ±	12.8 ±	17.8	17.2 ±	14.3 ±	16.4	14.8 ±
	6.4	6.2	6.4	5.8	6.3	6.0	6.6	5.7	± 6.0	6.1	6.3	± 6.3	6.4
<b>Understanding</b>	19.1 ±	21.5 ±	16.6 ±	23.1 ±	17.2 ±	17.3 ±	20.9 ±	14.3 ±	22.9	21.6 ±	17.0 ±	20.0	18.1 ±
	8.6	8.7	7.8	8.4	8.1	7.6	9.1	6.1	± 8.5	8.5	8.1	± 8.8	8.4
<b>Appraisal</b>	26.0 ±	28.0 ±	23.9 ±	29.8 ±	24.2 ±	24.1 ±	28.0 ±	21.6 ±	29.5	28.4 ±	24.1 ±	27.4	24.7 ±
	10.3	9.9	10.4	9.0	10.4	10.1	10.2	9.8	± 9.3	9.4	10.6	±	10.2
<b>Application</b>	15.9 ±	17.1 ±	14.6 ±	18.3 ±	14.8 ±	14.7 ±	17.1 ±	13.3 ±	18.0	17.4 ±	14.7 ±	16.9	14.9 ±
	6.3	6.1	6.3	5.5	6.3	6.2	6.2	6.0	± 5.7	5.8	6.4	± 6.2	6.3

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138 \* Mann-Whitney test was used to compare the categories of individuals distinguished by sex,  
 139 age-group, residence, education, marital status and poverty level (all P-values: <0.001).

140 † Crude mean values ± standard deviations.

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143 Scores of health literacy domains/indexes were highly and significantly correlated with each-  
 144 other (Spearman’s rho ranged from 0.8 to 0.9) [Table 3].

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**Table 3. Correlational matrix of the overall and subscale health literacy scores**

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	<b>Overall score</b>	<b>Access</b>	<b>Understanding</b>	<b>Appraisal</b>
<b>Access</b>	0.932 (<0.00)*	-	-	-
<b>Understanding</b>	0.931 (<0.01)	0.855 (<0.01)	-	-
<b>Appraisal</b>	0.968 (<0.01)	0.873 (<0.01)	0.844 (<0.01)	-
<b>Application</b>	0.933 (<0.01)	0.810 (<0.01)	0.804 (<0.001)	0.926 (<0.01)

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150 \* Spearman’s correlation coefficients and their respective p-values (in parentheses).

151

152 Age, sex, place of residence, education level, and self-perceived poverty, but not marital  
 153 status, were significant “predictors” of the overall health literacy score in unadjusted and  
 154 multivariable-adjusted general linear models (Table 4). In multivariable-adjusted analysis,  
 155 men and the “younger” participants reported a significantly higher mean health literacy score  
 156 compared, respectively, to women (85.4 vs. 80.3, respectively) and the older participants  
 157 (90.1 vs. 73.8, respectively). Furthermore, urban residents had a significantly higher mean  
 158 overall health literacy score compared to rural counterparts (86.2 vs. 79.5, respectively).  
 159 Education was strongly and linearly associated with health literacy score: individuals with ≥9  
 160 years of education had a (multivariable-adjusted) mean score of 101.5 compared to 80.1  
 161 among those with 1-8 years of education and 66.9 among individuals without any formal  
 162 schooling. Furthermore, wealthier participants had a significantly higher mean health literacy  
 163 score compared to their poorer counterparts (85.6 vs. 80.1, respectively) [Table 4].

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**Table 4. Association of the overall health literacy score with socioeconomic characteristics; unadjusted and multivariable-adjusted mean values from the general linear model**

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<b>Variable</b>	<b>Unadjusted models</b>		<b>Multivariable-adjusted models<sup>†</sup></b>	
	<b>Mean (95% CI)*</b>	<b>P</b>	<b>Mean (95% CI)</b>	<b>P</b>
<b>Sex:</b>				
Male	83.6 (81.6-85.5)	<0.001	85.4 (83.6-87.2)	<0.001

Female	69.3 (67.4-71.2)		80.3 (78.0-82.5)	
<b>Age group:</b>		<b>&lt;0.001 (2)<sup>‡</sup></b>		<b>&lt;0.001 (2)</b>
65-74	89.2 (86.9-91.6)	<0.001	90.1 (87.8-92.4)	<0.001
75-84	77.2 (75.0-79.4)	<0.001	84.6 (82.4-86.8)	<0.001
85+	63.1 (60.8-65.4)	-	73.8 (71.2-76.4)	-
<b>Place of residence:</b>				
Rural	70.4 (68.5-72.4)	<0.001	79.5 (77.4-81.6)	<0.001
Urban	82.9 (81.0-84.9)		86.2 (84.4-88.0)	
<b>Education level:</b>		<b>&lt;0.001 (2)</b>		<b>&lt;0.001 (2)</b>
0 years	62.0 (60.2-63.8)	<0.001	66.9 (64.9-68.9)	<0.001
1-8 years	83.2 (81.3-85.0)	<0.001	80.1 (78.3-82.0)	<0.001
≥9 years	109.1 (105.4-112.8)	<0.001	101.5 (97.6-105.4)	-
<b>Marital status</b>				
Married	84.6 (82.6-86.7)	<0.001	83.4 (81.3-85.6)	0.396
Not married	70.1 (68.3-71.9)		82.3 (80.3-84.2)	
<b>Self-perceived poverty:</b>				
Not poor	80.7 (78.7-82.7)	<0.001	85.6 (83.7-87.5)	<0.001
Poor	70.5 (70.5-74.4)		80.1 (78.1-82.0)	

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170 \* Range of health literacy score from 25 (least health literacy) to 125 (maximal health  
171 literacy).

172 † This model, including 1676 individuals, was simultaneously adjusted for all covariates  
173 presented in the table.

174 ‡ Overall p-values and degrees of freedom (in parentheses).

175

176 Our study provides novel and important information regarding the socio-demographic and  
177 socioeconomic factors associated with health literacy level among the older population in  
178 Kosovo. We found significant associations of health literacy with sex, education, place

179 of residence and self-perceived poverty. In our study, mean values of the overall health  
180 literacy index and sub-indexes were significantly lower among women, older participants,  
181 rural residents, low educated individuals and those perceiving themselves as poor.  
182 As a potential tool for improving decision making on health, health literacy could be of  
183 particular importance among older persons which are often regarded as a disadvantaged  
184 population group. Furthermore, health literacy deteriorates with age. For example, the score  
185 of functional health literacy declined by 0.9 for every year of increase in age, controlling for a  
186 number of socio-demographic variables [12], whereas older persons with lower literacy  
187 levels had significantly higher rates of chronic conditions and worse physical health  
188 compared to people with adequate health literacy [13]. Also, older individuals had a lower  
189 average health literacy compared to younger adults [14].

190 Our results are generally in concordance with those reported by previous research  
191 conducted in the region and beyond, which have highlighted negative associations of health  
192 literacy with age and education [14-19]. The rate of inadequate or marginal health literacy  
193 was found in 81.8% of primary care patients aged  $\geq 65$  years in a study in Serbia [18],  
194 whereas 59% of adults aged 65 years or older in USA reported below basic or basic health  
195 literacy levels [14] compared to 73.6% in our study. Furthermore, health literacy level was  
196 reported to be significantly lower among women [18] and those below the poverty line or with  
197 a lower income [14,16,18]. The association of health literacy with sex is controversial since  
198 some population-based surveys have reported mean health literacy scores to be higher  
199 among women than men [14,16]. These sex discrepancies might be influenced by the  
200 distribution of gender education gap and educational attainment through the life course. For  
201 example, our survey included people aged  $\geq 65$  years whereas other studies have surveyed  
202 people aged  $\geq 16$  years [14] and 18-90 years [16]; usually females are overrepresented  
203 among tertiary education students and graduates [20] and they perform better compared to  
204 males [21] in developed countries. On the other hand, almost two-thirds of female  
205 participants in our survey had no formal schooling and this fact, giving the strong association  
206 between health literacy and education, might explain the different sex health literacy results  
207 between our study and those reported elsewhere.

208 The two most widely used tests for measuring health literacy are the Rapid Estimate of Adult  
209 Literacy in Medicine (REALM) and the Test of Functional Health Literacy in Adults  
210 (TOFHLA). The first one mainly tests the recognition of medical and health related terms  
211 [22], whereas TOFHLA assesses numeracy and comprehension skills thus determining  
212 whether subjects can read or understand a written prescription [23]. Upon a standardized  
213 measurement scale with TOFHLA, in our study, inadequate and marginal health literacy was  
214 found in 58.7% and 14.9% of participants, whereas the remaining 26.4% of individuals had  
215 an adequate level of health literacy.

216 Health literacy among old adults has been measured in different settings and using various  
217 health literacy tools [12-13,18,24-25] whereas other studies have explored the health literacy  
218 in relation to health care, disease prevention and health system navigation [14,17].

219 We used a new instrument trying to capture the areas embedded in the current broader  
220 concept of health literacy which covers both personal abilities and health system  
221 characteristics determining one's ability for making sound health decisions. Our tool was a  
222 preliminary version of the HLS-EU instrument, developed by the European Health Literacy  
223 Consortium and discussed elsewhere [2].

224 It is important to study the socioeconomic correlates of health literacy as they can partly  
225 explain the pathway to unfavorable health outcomes. The personal socioeconomic and  
226 demographic characteristics of a person together with personal aspects such as vision and  
227 hearing skills, or verbal ability determine the level of health literacy at a point in time. This  
228 level of health literacy then determines the interactions of the individual with the health  
229 system in terms of access and utilization of health care, the quality of doctor-patient  
230 interaction and self-care, leading finally to various health outcomes [26]. It is obvious that,  
231 other things being equal, the better the health literacy level, the better the health outcomes.

232 In this context, the aim should always be toward improvement of the health literacy level of  
233 individuals and, to achieve this objective, the following potential routes are suggested: a)  
234 improve health literacy in the population; b) improve written and multimedia communication;  
235 c) improve oral communication in health care visits; and, d) alter the system of care by  
236 making the task or situation less demanding through, for instance, simplifying or making the  
237 system more “readable” [2,27]. Education seems to be vital for increasing the level of health  
238 literacy which consequently leads to behavioral change. Thus, it has been suggested that  
239 educating diabetic patients about disease self-management may result in higher  
240 engagement in healthy behaviors and preventive health care services [28]. Yet, changing  
241 behaviors is a complex process and different behavioral change theories have been  
242 suggested to explain the attitudes-to-behavior change transition, either through a series of  
243 attitude changes, or consequential behavioral change [29]. However, caution is needed  
244 about the education-age relationship and attitudes and behavior change. Educational  
245 activities might sometimes need to be customized to specific needs of older people as they  
246 might be less likely to engage and/or benefit from some educational activities such as  
247 computer delivered information [28,30] and are less susceptible to behavioral change [31].  
248 Our study has several limitations in line with its cross-sectional design which is susceptible  
249 to biases of selection and information. Our study included a large population-based sample  
250 and the response rate was quite high. Furthermore, the instrument we used for assessment  
251 of health literacy was based on a vigorous research work conducted in the framework of a  
252 large EU supported project [2]. In addition, we pre-tested our health literacy tool in a sample  
253 of older people in Kosovo and Albania before conducting the current survey. Yet, we cannot  
254 dismiss the possibility of differential reporting among categories of older people differing in  
255 socioeconomic characteristics. Finally, findings from cross-sectional studies should be  
256 interpreted with caution.

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258

#### 259 **4. CONCLUSION**

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261 This is probably the first report from the Western Balkans addressing health literacy in a  
262 population-based sample. Health literacy is an under-researched topic in countries of  
263 Southeast Europe and future prospective studies should be conducted in order to determine  
264 the magnitude and determinants of health literacy among the older population in Kosovo and  
265 other transitional settings.

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267

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271 as all investigators and staff involved.

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#### 275 **COMPETING INTERESTS**

276

277 None declared.

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#### 280 **AUTHORS' CONTRIBUTIONS**

281

282 ET, GB and HB contributed to the study conceptualization and design, analysis and  
283 interpretation of the data and writing of the article. KS and ER contributed to the content and  
284 structure of the manuscript. NJ and NR contributed to the acquisition of the data and

285 commented on the manuscript. All authors have read and approved the submitted  
286 manuscript.

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288

## 289 **CONSENT**

290

291 All authors declare that 'written informed consent was obtained from the patient (or other  
292 approved parties) for publication of this case report and accompanying images. A copy of  
293 the written consent is available for review by the Editorial office/Chief Editor/Editorial Board  
294 members of this journal.'

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## 297 **ETHICAL APPROVAL**

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299 An ethical approval from the Professional Ethical Board of the Ministry of Health of Kosovo is  
300 available.

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386  
 387

## 388 **APPENDIX**

389  
 390

### 390 **Appendix 1 – Instrument for assessment of health literacy**

391

#### 391 *Access:*

392  
 393  
 394  
 395  
 396  
 397

- 392 1. Are you able to find information about diseases?
- 393 2. Are you able to inform yourself about treatments?
- 394 3. Are you able to find information about risks such as e.g. smoking, obesity?
- 395 4. Are you able to find information on how to stay healthy?
- 396 5. Are you able to obtain information on e.g. healthy food and how to stay fit?

397

#### 398 *Understand:*

399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408

- 399 1. Are you able to understand the content of leaflets that come with medications?
- 400 2. Are you able to understand medical prescriptions?
- 401 3. Are you able to read risk information brochures found at pharmacies, in hospitals or at a  
 402 doctor's clinic?
- 403 4. Are you able to understand information about risky behavior as e.g. driving drunk, using  
 404 drugs and smoking?
- 405 5. Are you able to understand the content of food labels?
- 406 6. Are you able to understand the importance of a healthy lifestyle?
- 407 7. Are you able to understand the importance of a healthy environment e.g. at school, at the  
 408 workplace, at home and in the neighborhood?

409

#### 410 *Appraise:*

411

- 411 1. Are you able to discuss medical information with your doctor/pharmacist?

- 412 2. Are you able to consider risk and benefit of treatment options?
- 413 3. Are you able to judge what medical advice is best for you?
- 414 4. Are you able to identify your own risk actions?
- 415 5. Are you able to learn from other people's risky behavior?
- 416 6. Are you able to critically appraise risk information from health authorities/friends,
- 417 family/media?
- 418 7. Are you able to appraise your own health related habits?
- 419 8. Are you able to consider risk and benefit of healthy choices with regards to e.g. food and
- 420 exercise?

421

*Apply:*

- 422 1. Are you able to follow instructions that a doctor/nurse/pharmacist gives you?
- 423 2. Are you able to follow instructions that health authorities give you e.g. get a vaccination;
- 424 take part in screening; drive safely?
- 425 3. Are you able to change your risk-related habits, if you want to?
- 426 4. Are you able to get access to healthy products?
- 427 5. Are you able to use health information to your own benefit?

428

*Answer categories:*

- 429
- 430
- 431 Without any difficulty 5
- 432 With little difficulty 4
- 433 With some difficulty 3
- 434 Very difficult 2
- 435 Unable to 1