

## **Association of trait and specific hopes: cross sectional study on students and workers of health professions in Split, Croatia**

Mario Malički, Domagoj Marković, Matko - Marušić

Introduction: Hope (hoping) is most commonly assessed as a dispositional trait and associated with quality of life, self-care agency and non-attempts of suicide. However, little research has been conducted on hoping for specific events. Materials and Methods: We distributed a survey consisting of Integrative Hope Scale (IHS) and visual analogue scales on which respondents could declare their levels (intensity) of hope for specific events, to all first year health students enrolled at the University Department of Health Studies, Split, Croatia in 2011/12, as well as to working health professionals attending a nursing conference in April 2012. Results: A total of 161 (89.4%) students and 88 (89.8%) working health professionals returned the completed questionnaires. We found high trait hope scores of students and working health professionals ( $Md=111$ , 95% CI 109-113 vs.  $Md=115$ , 95% CI 112-119;  $U=5353$ ,  $P=0.065$ ), and weak to moderate correlations of trait and specific hopes ( $r=0.18$  to  $0.48$ , Spearman's rank correlation coefficient). Students and workers reported 31 different things they hoped for most in life, of which the most prevalent were being healthy and happy. There was very little agreement between participants' reported influence of the four factors compromising the trait hope (self-confidence, ambition, optimism, and social support) on their specific hopes. Conclusions: Our findings, while strengthening the validity of hope as a trait, indicate that specific hopes of individuals are moderated by factors not captured by the IHS trait scale. Further research should explore specific hoping in detail, as well as the effectiveness of interventions aimed at increasing specific or generalized hoping.

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24

**Abstract**

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38 life, of which the most prevalent were being healthy and happy. There was very little agreement  
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40 confidence, ambition, optimism, and social support) on their specific hopes.

41 **Conclusions:** Our findings, while strengthening the validity of hope as a trait, indicate that  
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43 research should explore specific hoping in detail, as well as the effectiveness of interventions  
44 aimed at increasing specific or generalized hoping.

## 45 **Introduction**

46 Hope (hoping) is regarded as the earliest and the most indispensable virtue inherent in the state  
47 of being alive (Erikson 1964). It is the central tenet of religions, especially Christianity (Benedict  
48 XVI 2006; Titus 1:2 2011), and an indispensable companion of illness and healing. It  
49 accompanies researchers during their scientific discoveries and individuals during their  
50 tribulations. Hope has been a popular topic in literature and arts, ever since its entrapment in  
51 Pandora's box (White 1914); and recently, it has become the topic of growing research in the  
52 fields of positive psychology, philosophy, nursing and medicine (Cutcliffe & Herth 2002; Kylma  
53 & Vehvilainen-Julkunen 1997; Schrank et al. 2008; Smith 2012; Snyder et al. 1996). Hope has  
54 been positively correlated with quality of life (Evangelista et al. 2003), self-care agency (Alberto  
55 & Joyner 2008), caregiver burden (Zink Jadaa 2008), and non-attempts of suicide (Meadows et  
56 al. 2005). However, its measurement and conceptualization is still a topic of great debate (Boyd  
57 2015; Bright et al. 2011; Kylma & Vehvilainen-Julkunen 1997; Lopez & Snyder 2003; Schrank  
58 et al. 2008). In short, although hope is widely perceived as something that can be higher for one  
59 object or event than for another and that can fluctuate in its intensity, thresholds and norms for  
60 specific hopes in populations, or patients affected or recovering from serious illnesses, have not  
61 been explored or measured. Researchers have instead focused on qualitatively identifying factors  
62 that generate or quell hope (Soundy et al. 2014), or have focused on quantitatively measuring  
63 hope, either as an universal (trait) that applies across situations and times; or more specifically as  
64 state hope, a person's current hoping disposition (Lopez & Snyder 2003; Snyder et al. 1996).  
65 More than 32 instruments for the measurement of hope have been developed, and recently  
66 researchers have combined the properties of the most commonly used instruments (Miller Hope  
67 Scale, Herth Hope Index, Snyder Hope Scale) into an Integrative Hope Scale (IHS) (Schrank et

68 al. 2011). It was the goal of our research to determine the association of the universal (trait)  
69 hope, measured by the IHS, with hoping for specific events, measured by declaring the intensity  
70 (level) of hope on visual analogue scales. Additionally, to further determine the relationship  
71 between the universal and specific hoping, we explored the congruency between the strongest  
72 scoring factor of the IHS trait scale (confidence, positive future orientation, lack of perspective,  
73 social relations) and the participants' perception regarding which factor influenced their specific  
74 hoping the most.

## 75 **Materials and Methods**

### 76 *Questionnaire*

77 The English version of the IHS had been translated into Croatian by the authors and then back  
78 translated by an independent language expert to confirm its validity. Four items were  
79 reformulated in the process. Alongside demographical questions on age and sex, we also asked  
80 the participants to declare the level (intensity) of their specific hopes on the visual analog scale  
81 (VAS), graded from 0 to 100 (with every 10 intervals marked), for two different events: finishing  
82 their studies in time and being healthy at the age of 60. We then asked the respondents to name  
83 (using an open ended question) what they hope for most in life, and to designate their level of  
84 hope for that stated goal. Following each of the VAS questions we also asked the respondents to  
85 list the four factors: self-confidence, ambition, optimism, and social support; from most to least  
86 contributing to their previously stated level of hope (Appendix 1). We chose these four factors as  
87 they compromised the IHS subscales (factors): ‘trust and confidence’, ‘positive future  
88 orientation’, ‘lack of perspective’, ‘social relations and personal value’(Schrank et al. 2011). As  
89 the stated goals were positive, we found that ‘optimism’ as a term best captures the inverse of the  
90 ‘lack of perspective’ subscale.

### 91 *Sampling and procedures*

92 We used two-stage convenience sampling of two different age groups of health professionals.  
93 First, in order to assess if the level of hope declared on the VAS or IHS could be influenced by  
94 the order by which examinees filled out these questionnaires, we randomized all first year  
95 students of health studies at the University of Split (who enrolled in their first year of studies in  
96 2011/2012) into two groups: the 1<sup>st</sup> group was given the IHS questionnaire followed by the VAS,  
97 while the 2<sup>nd</sup> group was first given the VAS followed by the IHS. A simple random number

98 generator was used for random allocation to the groups. As we found no evidence that the order  
99 of presenting questionnaires influenced either IHS or VAS scores (Supplementary Table 1), in  
100 further analysis we treated both groups as one. Additionally as the student population was age-  
101 homogeneous, in order to check for the possible influence of age on IHS or VAS scores, we  
102 administered the questionnaire to the working health professionals who attended the Education  
103 for lecturers of nursing courses in April 2012, Split. All of the working health professionals were  
104 given a questionnaire in which the IHS questionnaire was printed first. Cronbach's alpha of the  
105 IHS for both groups combined was 0.869 (95% CI=0.843-0.892) showing good internal  
106 consistency.

#### 107 *Statistical analysis*

108 Frequencies and percentages were used for the description of categorical variables, and median  
109 (Md) and interquartile range (IQR) for non-normal distributions. The Mann-Whitney U test was  
110 used to assess the difference in medians between the groups, while the chi-square test was used  
111 to compare frequency distributions of categorical variables. Correlations between the CIHS total  
112 and subscale scores with VAS scores were assessed by Spearman's rank correlation coefficient.  
113 Concordance of the ranking order with which the participants graded factors which influenced  
114 their hope levels were determined using Kendall's coefficient. The level of significance for all  
115 statistical tests was 0.05. Data was analyzed with SPSS statistical package 19.0 (SPSS; Chicago,  
116 Illinois, USA).

#### 117 *Ethical approval*

118 The study was approved by the ethical review board of University of Split, Croatia (no. 003-  
119 08/11-03/0005).

## 120 **Results**

### 121 *Demographic data*

122 A total of 161 (89.4%) students of first year health studies (132 women, 26 men, missing data for  
123 3 respondents) participated in the study, as well as 88 (89.8%) working health professionals  
124 attending a nursing conference (86 women, 2 men). The students were 18-47 years old, with a  
125 median age of 19 (IQR=19-21), and the workers were 22-70 years old, with a median age of 48  
126 (IQR=38-52).

### 127 *Comparison of students and working health professionals*

128 There was no significant difference between the two groups in their IHS total score (Md=111,  
129 95% CI 109-113 vs. Md=115, 95% CI 112-119; U=5353, P=0.065). However, workers had  
130 higher scores on the IHS' 'trust and confidence' and 'social relations and personal value'  
131 subscale scores, as well as higher hopes (designated on VAS) of being healthy at the age of 60  
132 and for the things they most hoped for in life (Table 1).

133 Sex differences were observed for the student population, with males reporting higher hopes for  
134 being healthy at the age of 60 (U=1153.5, p=0.009).

135 For both groups, universal (trait) hope, measured by the IHS, showed a significant strength of  
136 correlation ( $r=0.18$  to  $0.48$ ) with specific hopes, measured by the VAS (Table 2).

137 When answering an open ended question on what their most hoped-for thing in life was, students  
138 and workers listed 1 to 5 answers, with no differences between the groups on the number of  
139 answers they listed (Md=1, 95% CI 1-2 vs. Md=2, 95% CI 1-2, U=5373, P=0.169).

140 Cumulatively, 31 most hoped-for concepts emerged, with health and happiness being the most  
141 prevalent in both groups. However, the frequency distribution of individual concepts showed

142 several significant differences, with students hoping more for health, work and family, while  
143 workers hoped more for life contentment (Table 3).

#### 144 *Influence of hope trait factors on specific hoping*

145 After designating levels of hope on the VAS scales participants declared how much the 4 factors  
146 (self-confidence, ambition, optimism, and social support) contributed to the levels of hope they  
147 designated. The same order of the factors was listed by 23 (14.3%) students, and 0 (0%) workers.  
148 The order of the factors between different participants showed very little agreement, even when  
149 participants with highest or lower trait hope scores were analyzed separately (Kendall's W from  
150 0.024 to 0.117; Supplementary Table 2).

151 Of the four factors, optimism was most commonly chosen by the participants of both groups as  
152 the factor which contributed most to the hope of being healthy at the age of 60, as well as for  
153 their most hoped-for thing in life ( $\chi^2=2.632$ ,  $P=0.004$  and  $\chi^2=6.438$ ,  $P=0.09$ , respectively). No  
154 single factor was chosen by the students as that which contributes most to their hope of finishing  
155 studies in time, but rather all 4 factors (self-confidence, ambition, optimism, and social support)  
156 were represented in equal measure ( $\chi^2=6.903$ ,  $P=0.075$ , Supplementary Table 3).

157 In order to see if the factor which individuals chose as the most influential to their specific hopes  
158 was also the one with the highest score on the IHS (sub)scale, we ranked the IHS subscales  
159 scores of each individual from highest to the lowest. This resulted in ambition (positive future  
160 orientation) being expressed as the strongest factor of the four for both groups of participants  
161 (Supplementary Tables 2 and 3).

**162 Discussion**

163 Our study showed that there were no differences between total scores of universal (trait) hope,  
164 measured by an Integrative Hope Scale, between training and working health professionals; and  
165 that the trait hope was weakly to moderately correlated with the intensity (level) of hope for  
166 specific events, declared on visual analogue scales. These findings strengthen the validity of  
167 hope as a human trait, and imply its stability through time, as also indicated by Schrank et al. on  
168 the general population of Austria (Schrank et al. 2011). The IHS scores in our sample were  
169 however higher than those found in Austria suggesting either cultural or quality of life  
170 differences, or even the specifics of the caring profession which our sample was based on.  
171 Averill et al. have shown that religion, specifically Judeo-Christian influences on the Western  
172 nations, compared to Confucianism influences on the Eastern nations, left a profound influence  
173 on both the conceptual grasping and importance of hope (Averill et al. 1990). Although there is a  
174 higher percentage of declared Catholic population (86.28%) in Croatia than in Austria (73.66%)  
175 (Croatian bureau of statistics 2013; Statistics Austria 2001), neither the Schrank et al. study  
176 (Schrank et al. 2011) nor our study, checked for religious orientation, requiring that these  
177 differences be explored in further studies.

178 Higher levels of the subscales '*trust and confidence*' and '*social relations and personal value*' of  
179 working health professionals in our study compared to those of the student population, most  
180 likely result from age specific developmental characteristics and family status. Similarly, the  
181 differences observed in the most hoped-for things in life for these two populations could  
182 originate from the higher number of individuals within the working population who have already  
183 achieved their hopes and goals for work and family, and are therefore more oriented toward life  
184 contentment and spiritual fulfillment. Workers' higher levels of hope for being healthy at the age

185 of sixty could result from the facts that our sample consisted only of an active working  
186 population and that the workers were also closer to the 60 year-mark, meaning that they could,  
187 based on their age and health so far, better evaluate their future health. Our findings of male  
188 students having higher hopes for being healthy at the age of 60 could originate from observed  
189 gender differences in the perception of health (Suris et al. 1997), yet, as our sample included  
190 only a small number of male students (n=26) this difference needs to be confirmed in further  
191 studies.

192 Our study also adds further support for hope being an emotion that can be expressed and  
193 recollected (Smith 2012), as the most hoped for things in life our participants listed are almost  
194 identical to those in the Averill's study of analysis of hope (Averill et al. 1990), in which,  
195 wanting to "eliminate" abstract hopes, researchers asked participants to name events in the  
196 previous year when they specifically hoped for something (after having been asked to explain  
197 and provide examples of differences between wanting or desiring something, and hoping for  
198 something).

199 We acknowledge that our sample was not random; however, it was not the goal of this  
200 study to determine hope norms for the Croatian population, nor have such studies on hope been  
201 conducted anywhere in the world. Likewise, the most hoped-for things in life listed by the  
202 students and workers of health professions should not be taken as representative, outside perhaps  
203 health professions, as hopes and life goals depend on a multitude of factors, including those  
204 intrinsic, generational, social and cultural (Grouzet et al. 2005; Twenge et al. 2012).

205 The positive association we found between a person's trait hope and their levels of hope  
206 for different specific events, coupled with the weak to moderate strength of those correlations  
207 ( $r=0.18$  to  $0.48$ ) and the differences in which individuals ranked 4 factors compromising trait

208 hope (self-confidence, ambition, optimism, and social support) according to how much they  
209 contributed to their levels (intensity) of hope for specific events (Kendall's W from 0.002 to  
210 0.15), indicates that specific hopes of individuals are most likely mediated by factors that do not  
211 compromise the IHS trait instrument. As determination and increased goal oriented actions are  
212 invoked by the changes in the intensity of hope(ing) for that goal (Averill et al. 1990), and  
213 multiple factors have been found to influence hoping on patients recovering from stroke or spinal  
214 cord injuries (Soundy et al. 2014) further research should focus on determining the most  
215 influential factors for specific hopes, especially ones associated with better health outcomes (Van  
216 Allen et al. 2015). Additionally, effectiveness of interventions aimed at increasing specific or  
217 generalized hoping should be assessed.

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290 **Table 1. Integrative hope subscale scores and levels of hope designated on visual-analog**  
 291 **scales (VAS) for students (n=161) and workers (n=88) of health professions**

<b>Variable</b>	<b>Students Median (IQR)</b>	<b>Workers Median (IQR)</b>	<b><i>P</i>*</b>
<b>Integrative hope total score</b>	111.0 (105-118)	115.0 (106-121)	0.065
<b>Integrative hope subscale</b>			
Trust and confidence	32.5 (31–36)	36.0 (32–38)	<0.001
Lack of perspective	27.0 (24–30)	26.0 (24–30)	0.653
Positive future orientation	27.0 (25–29)	27.0 (25–29)	0.873
Social relations and personal value	24.0 (22–26)	26.5 (23–28)	<0.001
<b>Total hope score</b>			
<b>Levels of hope on VAS for</b>			
Finishing studies in time	90 (80–100)	/	/
Being healthy at the age of 60	70 (60–80)	85 (70–92)	<0.001
The most hoped-for thing in life	90 (76–100)	95 (80–100)	0.041

292 \*Mann-Whitney U test

293 **Table 2. Correlation of trait hope, specific hopes and age of students (n=161) and workers**  
 294 **(n=88) of health professions**

<b>Correlation (<math>\rho^*</math>, 95% CI)</b>	<b>Hope for finishing studies in time</b>	<b>Hope for being healthy at the age of 60</b>	<b>Most hoped- for thing in life</b>	<b>Age</b>
<b>Students' trait hope</b>	0.275 (0.124 to 0.413)	0.182 (0.027 to 0.328)	0.318 (0.169 to 0.452)	0.0261 (-0,130 to 0,181)
<b>Workers' trait hope</b>	/	0.421 (0.210 to 0.595)	0.486 (0.278 to 0.650)	-0.0140 (-0.340 to 0.0732)

295 \*Spearman's rank correlation coefficient

296 **Table 3. Concepts that students (n=157) and workers (n=78) listed as their answers to the**  
 297 **question: “What do you most hope for in life?”**

Answer	No (%) of		<i>P</i> *
	students	workers	
Health	73 (46.50)	55 (70.51)	<0.001
Happiness	39 (24.84)	17 (21.79)	0.7237
Work/Carrier	38 (24.20)	8 (10.26)	0.0181
Family	29 (18.47)	6 (7.69)	0.0465
Love	10 (6.37)	11 (14.10)	0.0865
To finish studies	9 (5.73)	/	0.0726
To achieve my goals	7 (4.46)	1 (1.28)	0.3775
Money	6 (3.82)	3 (5.13)	0.7251
Children	4 (2.55)	2 (2.56)	0.6660
Marriage	4 (2.55)	/	0.3754
Living	4 (2.55)	3 (3.85)	0.8856
Winning a lottery	2 (1.27)	/	0.8049
Peace	2 (1.27)	4 (5.13)	0.1852
To be content	1 (0.64)	5 (6.41)	0.0276
Advanced age/longevity	1 (0.64)	4 (5.13)	0.0773
Spiritual fulfillment	1 (0.64)	4 (5.13)	0.0773
Children’s happiness	/	2 (2.56)	0.2073
Mingling	/	2 (2.56)	0.2073
Other †	1 (0.64)	1 (1.28)	0.8049

298 \*Chi-square test

299 † Includes concepts: to remain the same, to have no worries, everything, helping family  
 300 members, good grades, good relationship with colleagues, fun, food, knowledge, social security,  
 301 grandchildren, for no tragedies in life.