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Rania F. Valeeva 
University of Antwerp, Belgium

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Does Education Matter for the Relationship between Healthcare Use for Serious Health Problems and Well-being? A Study in 24 Countries

Rania F. Valeeva

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Abstract

Previous research has shown that the well-being of people in Western societies varies consistently. To understand these differences, we focus on the relationship between healthcare use and well-being, since previous research has shown that poor health and lack of social support reduce well-being. Based on the findings of the previous research, we hypothesize that there is a positive relationship between healthcare use and well-being, and that the strength of this relationship increases with the years of schooling. We tested these hypotheses in 24 countries using data (N = 40,249) from the European Social Survey. The data were analyzed using hierarchical multiple regression models. Our results indicate cross-national differences in the relationship between healthcare use for serious health problems and well-being. Moreover, they suggest that the extent of education matters for this relationship, however its influence differs across countries. Further research is needed to explain these cross-national differences.

Introduction

Differences in the well-being of people in Western societies are consistent, but existing knowledge about these differences is still incomplete. A number of possible reasons for well-being differences have been suggested, including differences in individual and contextual characteristics (Diener & Ryan, 2009; Diener, Diener, & Diener, 2009; Diener, Helliwell, & Kahneman, 2010; Greve, 2015). Previous research indicates that poor health and lack of social support reduce well-being (Eurofound, 2012; Greve, 2015; Helliwell, Barrington-Leigh, Harris, & Huang, 2010). To understand well-being differences, we focus on the relationship between healthcare use for serious health problems and well-being.

Nowadays, it is rational to use health services for serious health problems, since healthcare uses advanced medical technologies and methods that are able to avoid the risk of increased vulnerability and to improve the poor health and well-being (Bunker, Frazier, & Mosteller, 1995; Goldman & Cook, 1984; Tunstall-Pedoe et al., 2000). Moreover, previous research has shown that not using or delaying the use of health services for serious health problems leads to longer recovery, increased number of emergency hospital admissions and premature death (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Dracup et al., 1995; Nolte, Scholz, Shkolnikov, & McKee, 2002; Schrijvers, Mackenbach, Lutz, Quinn, & Coleman, 1995; Stirbu, Kunst, Mielck, & Mackenbach, 2011). This gives reason to believe that people with serious health problems are *more* likely to

improve their well-being if they choose to use health services than if they do not. Yet the relationship between healthcare use and well-being is influenced by a number of personal (e.g., education) and contextual (e.g., institutional, social and cultural context) factors, since the choice to use health services is not only a personal decision, but it is embedded in social contexts and stems from a lifetime of social experiences (Pescosolido & Boyer, 1999; Walton & Antony, 2017). In this paper, we examine the relationship between healthcare use and well-being in different geographical macro-contexts, and we explore whether the extent of individual education matters for this relationship, since knowledge about this interrelationship is scarce (Lueckmann et al., 2021; Stirbu et al., 2011; Schnittker et al., 2005). More knowledge about this could contribute to a better understanding of differences in well-being within and between countries.

We define well-being in terms of overall well-being, since we study it in a broad sense (Greve, 2012, 2015; Helliwell et al., 2010). Greve (2012, 2015) states that well-being and happiness are related indicators of general well-being, therefore we use these terms interchangeably. Furthermore, we view the use of health services by persons with serious health problems as their search for instrumental and emotional support, since their poor health may hinder their daily activities. The use of healthcare is likely to benefit their well-being directly, since health services may include medical interventions that reduce the symptoms of ill-health, free an individual from pain, dysfunction and discomfort, and improve his or her well-being (Gevers, Gelissen, Arts, & Muffels, 2000; Sen, 1997). However, the use of health services implies specific communication with medical professionals (i.e., doctors and nurses) who provide professional attention (through questions and examinations), diagnosis, treatment and care. Such communication includes scientifically based explanations of health problems, insightful recommendations and advice on ways how to cope with a particular health problem, as well as emotional support. Previous research has shown that interacting with people who provide emotional, instrumental or informational support significantly improves the mental health and happiness of recipients of such support, due to its beneficial effect on stress reduction (Cohen & Wills, 1985; Gleason & Iida, 2015; Lin, Simeone, Ensel, & Kuo, 1979; Thoits, 2011). Given this research, it is plausible to assume that the use of health services affects people's well-being, and that people with serious health problems who do not use health services are missing out on opportunities for effective recovery and for improving their well-being. In this study, we question this assumption. To examine it, we have used insights from the sociological theory of the production of social functions (Lindenberg, 1990), which states that the achievement of well-being is affected by the material and non-material resources available to people. Based on this theory and the findings of previous research, we hypothesize that the well-being of persons with serious health problems benefits more from increased use of health services than from less or no use of it. We expect to find a positive relationship between healthcare use and well-being.

It should be emphasized that despite the availability and affordability of healthcare in modern societies, some people with serious health problems postpone its use, thereby prolonging the suffering from the illness and delaying the improvement of their well-being (Dracup et al., 1995; Farley & Flannery, 1989; Schrijvers et al., 1995). Such delay can be explained by various factors (Devaux, 2013; Jusot, Khlaf, & Rochereau, 2008; Pescosolido & Boyer, 1999; Van Doorslaer, Koolman & Jones, 2004). In this study, we use the framework of the capability approach, since it offers a more specific way of looking at this issue. The scholars of the

capability approach emphasize that the achievement of well-being is not only determined by the availability of people's material and non-material resources, but also by the way people use them. According to Sen (1999) and Nussbaum (2000), people with limited access to available resources and services are constrained in their ability to achieve the same level of well-being as people without accessibility problems. More specifically, they suggest that the accessibility of some services is constrained by a lack of basic skills due to limited education. Recent empirical evidence supports this argument, since it shows that the less educated experience difficulties in accessing health services due to a lack of health literacy, even when such healthcare is available and affordable to them (Berkman et al., 2011; Howard, Sentell, & Gazmararian, 2006; Lee, Tsai, Tsai, & Kuo, 2010; Nutbeam, 2008; Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005; Rudd, 2007). In particular, previous research shows that a lack of health literacy hinders patients' communication with health professionals (about diagnosis, treatment and recommendations) and limits their cognitive access to information about health issues and healthcare (Shonna et al., 2012; Sorensen et al., 2015). Moreover, several studies indicate that people with low health literacy have difficulties in understanding written or spoken information on a number of relevant health issues (Berkman et al., 2011; Shonna et al., 2012; Nutbeam, 2008; Sorensen et al., 2015; Van der Heide et al., 2013a, b). It seems plausible to assume that the less educated experience barriers to accessing health services and are therefore limited in their ability to improve their well-being when experiencing serious health problems.

On the contrary, more years of education provide more skills in reading, information processing, reasoning, solving essential problems and learned self-efficacy, which enable people to take control of their lives, including health (Mirowsky & Ross, 2003, 2007; Unterhalter, 2009). Moreover, longer schooling increases knowledge about health-related topics (i.e. health risks, health behaviours, the importance of good health, positive attitudes towards seeking and receiving medical care in case of serious health problems) and health literacy skills (Berkman et al., 2011; Pill, Peters, & Robling, 1995; Pirisi, 2000). It is therefore likely that the better educated receive more effective instrumental, informational and emotional support from health service providers, since they have cognitively more access to healthcare and health information, due to better developed health literacy skills, than their less educated counterparts (Shonna et al., 2012; Sorensen et al., 2015; Van der Heide et al., 2013a, b). Taking into account the findings of the previous research, we assume that the well-being of the better educated with serious health problems benefits *more* from the use of healthcare than the well-being of less educated counterparts with the same ill-health. Based on the findings of previous research, as well as on the insights of the sociological theory of the production of social functions and of the capability approach (Lindenberg, 1990; Nussbaum, 2000; Ormel, Lindenberg, Steverink, & Verbrugge, 1999; Sen, 1999), we hypothesize that better educated persons with serious health problems have a stronger positive relationship between healthcare use and well-being than persons with few years of education. We expect education to moderate this relationship.

Method

Data

To test the study hypotheses we used the transnational European Social Survey (2004) performed in 26

countries in 2004 and 2005. This survey is a biennial survey representative of the non-institutionalized population aged 15 years and older in participating countries. For each country, respondents were selected by means of strict probability samples of the resident population aged 15 years and older living in private households (irrespective of nationality or language). Data were collected by means of standardized face-to-face interviews. Respondents were interviewed in their respective country languages and at their homes by professional interviewers (Billiet & Pleysier, 2007). The average response rate for face-to-face interviews of a general population in these countries was 61.72%, ranging from 43.6% in France to 79.3% in Estonia (Billiet & Pleysier, 2007). The present study is based on data from 24 countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and the United Kingdom. Sample data from Iceland were not included in the analysis due to the country's small sample size ($n = 579$). Moreover, sample data from Italy were also not included in the analysis due to missing information on the main variables of this study. In addition, we limited the dataset to respondents aged 20-80, since people below 20 years of age usually have not yet completed their education and usually still live in their parental household; while the respondents aged 81 or older form a very selective group of relatively healthy people (compared to those who were born in the same period but live in institutions or collective households which are not included in the European Social Survey). Including people from these age groups in the data analyses may lead to biased estimates of the associations among the main variables. Furthermore, observations with missing values for the main study variables (i.e., education, use of health services, well-being) were excluded from the analysis. However, the missing data of the remaining variables were substituted by the mean values of each variable on the level of each country. The final dataset included observations of 40,249 respondents. The number of respondents per country ranged from 1,194 in Slovenia to 2,479 in Czech Republic.

Variables

Well-being was operationalized using the survey question on self-reported happiness: 'Taking all things together, how happy would you say you are?' Answers were offered on 0-10 scale, ranging from 0 (*extremely unhappy*) to 10 (*extremely happy*). Previous research has shown this variable to be a sensitive and reliable measure of general well-being (Andrews & Crandall, 1976; Greve, 2012, 2015).

The use of health service for serious health problems (HS-shp) was operationalized using the survey question on self-reported tendency to use health service in case of four hypothetical ill-health conditions: 'Suppose now that you had (1) a very sore throat, (2) a serious headache, (3) serious sleeping problems, or (4) a serious backache. Who, if anyone, would you go to first for advice or treatment?' For each ill-health condition, the participants were given eight response categories: nobody, doctor, nurse, pharmacist /chemist/drugstore, friends or family, Internet, a medical helpline, and other care practitioner. We used three response categories for the construction of this variable: nobody, doctor and nurse. The scale of this variable ranged from 0 (or no use) to 4 times use, indicating the extent of healthcare use. Previous research has shown that the reported tendency to use healthcare for a hypothetical health problem had a high predictive value for actual healthcare use (Van der Meer & Mackenbach, 1998). Moreover, this operationalisation strategy creates the same needs of healthcare and allows

for the examination of respondents' choice of health service.

Education was operationalized using answers to the survey question: 'How many years of full-time education have you completed?' Answers were given in full-time equivalents, including the number of years of compulsory education. Using the answers to this survey question, we have constructed two broad educational groups. In the first educational group (i.e., group 1) we included respondents with zero to nine years of education. In the second educational group (i.e., group 2), we included respondents with ten and more years of education. This method was used in the previous studies (Cavelaars, Kunst, & Mackenbach, 1997). We used these educational groups to examine whether the strength of the association between the main study variables (i.e., healthcare use and well-being) varies by the level of education.

We included several characteristics of respondents as control variables in the data analyses, since previous studies have shown that they are associated with *happiness*, *healthcare use* and *education*. These characteristics are age, gender, partner status, self-reported difficulties with daily activities due to health condition, and generalized trust (Cavelaars, Kunst, & Mackenbach, 1997; Diener and Ryan, 2009; Helliwell et al., 2010; Mechanic, 1998; Nannestad, 2008; Valeeva, 2016; Van der Meer, 1998). They were coded in the following way: *age* in years; *gender* as male or female; *partner status* was coded as a set of dummy variables indicating whether a person has a partner (married or cohabiting) or no partner (single, divorced, separated or widowed); *self-reported difficulty in daily activities due to health condition* was coded as a set of dummy variables indicating whether a respondent is hampered to some extent, very much or not at all in daily activities; and the variable *generalized trust* was constructed using answers (on a scale of 0 to 10) to three survey questions: "Generally speaking, would you say that most people can be trusted, or would you say that you cannot be too careful in dealing with people?", "Do you think that most people would try to take advantage of you if they had the chance, or would they try to be fair?" and "Would you say that most of the time people try to be helpful, or that they mostly look out for themselves?" The scale of the variable *generalized trust* ranged from 0 (no trust) to 33 (maximum trust). The descriptive statistics of the main variables are reported in Tables 1 and 2.

Analysis

Firstly, we described the main study variables, as well as the general characteristics of the sample of each country (see Table 1 and 2). Afterwards, we analyzed the sample data of each country, using hierarchical multiple linear regression modeling, since this method suits the structure of our research questions and hypotheses. The statistical models were built stepwise. In the first model (in Tables 3-5), we included the variable *happiness* and the control variables (i.e., age, gender, partner status, hampered in daily activities due to health condition, and generalized trust). In the second model, we examined whether *the use of HS-shp* is related to *happiness* or not. Therefore, we included the variable *the use of HS-shp* in the model. In the final model, we examined whether the extent of education matters for the relationship between *the use of HS-shp* and *happiness*. To this end, we evaluated the extent of this association in each educational group at each country level. The SPSS package was used to carry out the statistical analyses.

Table 1. Descriptive Statistics of the Dataset

Countries in geographical regions	<i>N</i>	Female %	Age <i>Mean (SD)</i>	Partner %	Generalized trust <i>Mean (SD)</i>	Hampered in daily activity	
						a lot %	some %
<i>Central European region</i>							
Austria	1784	54.5	45.18 (15.39)	51.7	16.22 (5.68)	4.2	18.0
Belgium	1548	50.4	46.52 (15.96)	57.8	14.79 (5.05)	3.9	15.8
France	1607	53.4	48.69 (16.09)	53.9	14.72 (5.00)	6.2	16.2
Germany	2431	51.7	48.37 (15.43)	59.1	15.27 (5.27)	5.8	20.9
Luxembourg	1334	47.7	45.44 (15.46)	62.1	15.38 (5.77)	2.9	14.1
Netherlands	1693	57.7	49.07 (15.18)	56.2	17.31 (4.58)	6.9	20.9
Switzerland	1873	56.0	47.46 (15.60)	54.5	17.65 (4.74)	3.3	15.7
<i>North European region</i>							
Denmark	1300	51.0	47.72 (15.47)	58.8	20.07 (5.03)	4.8	16.9
Finland	1786	52.6	48.28 (16.09)	54.9	19.02 (4.35)	7.1	23.3
Norway	1598	47.6	46.02 (15.06)	56.8	19.53 (4.36)	5.8	20.0
Sweden	1683	49.1	47.46 (15.97)	47.4	18.41 (5.17)	6.1	21.5
<i>West European region</i>							
Ireland	1956	56.9	48.18 (15.89)	60.6	18.21 (5.45)	3.4	13.4
UK	1675	54.5	47.87 (16.33)	47.3	16.30 (5.03)	9.1	16.9
<i>South European region</i>							
Greece	2166	56.5	49.92 (17.15)	64.6	10.82 (5.86)	4.2	13.7
Portugal	1834	60.3	49.03 (17.39)	60.0	12.50 (4.80)	3.4	14.6
Spain	1400	49.0	45.37 (16.47)	62.8	14.28 (5.36)	3.6	10.4
<i>Eastern European region</i>							
Czech Republic	2479	53.7	49.02 (15.96)	56.0	13.34 (5.66)	6.9	25.7
Estonia	1646	59.3	48.71 (16.89)	48.5	15.16 (5.17)	10.6	17.1
Hungary	1326	56.9	47.57 (16.19)	59.4	12.55 (5.49)	8.7	21.9
Poland	1445	52.0	44.13 (16.01)	65.0	11.14 (5.46)	7.6	20.2
Slovakia	1197	50.0	43.91 (15.38)	63.7	12.03 (5.41)	4.3	18.0
Slovenia	1194	55.7	47.15 (16.51)	58.7	13.03 (5.88)	9.3	25.2
Turkey	1599	55.3	41.04 (15.26)	74.0	10.16 (6.38)	4.0	12.9
Ukraine	1695	63.3	50.64 (17.07)	57.2	12.82 (6.21)	13.0	34.8

Source: European Social Survey (2004).

Results

Before turning to the actual testing of the hypotheses, some descriptive results are presented. Table 2 provides descriptive statistics for the total sample. It shows the sample sizes of the included countries, as well as the sizes

of two educational groups in each country. This table also presents an overview of the average country scores of the variables *happiness* and *the use of HS-shp*. When comparing these scores, we observe the cross-national variation in the mean scores of the variable *happiness*. In particular, the lowest mean score on *happiness* is in Ukraine ($M = 5.39$, $SD = 2.39$), and the highest is in Denmark ($M = 8.31$, $SD = 1.43$).

Table 2. Descriptive Statistics of the Main Study Variables

Countries in geographical regions	<i>N</i>	Education		Happiness	Healthcare use for serious health problems
		Group 1 %	Group 2 %	<i>Mean (SD)</i>	<i>Mean (SD)</i>
<i>Central European region</i>					
Austria	1784	19.8	80.2	7.50 (1.88)	2.22 (1.52)
Belgium	1548	23.3	76.7	7.72 (1.53)	2.12 (1.37)
France	1607	32.3	67.6	7.16 (1.91)	2.31 (1.34)
Germany	2431	10.1	89.9	7.08 (1.97)	2.15 (1.34)
Luxembourg	1334	30.8	69.2	7.74 (1.87)	2.67 (1.42)
Netherlands	1693	20.7	79.3	7.67 (1.43)	2.00 (1.34)
Switzerland	1873	53.3	46.7	8.03 (1.51)	1.52 (1.30)
<i>North European region</i>					
Denmark	1300	13.8	86.2	8.31(1.43)	2.18 (1.33)
Finland	1786	24.8	75.2	8.04 (1.42)	2.28 (1.30)
Norway	1598	14.0	86.0	7.89 (1.57)	2.11 (1.21)
Sweden	1683	21.3	78.7	7.81 (1.62)	2.14 (1.37)
<i>West European region</i>					
Ireland	1956	17.8	82.2	7.94 (1.70)	1.98 (1.34)
UK	1675	10.2	89.8	7.33 (1.89)	1.95 (1.23)
<i>South European region</i>					
Greece	2166	48.1	51.9	6.76 (2.06)	2.67 (1.42)
Portugal	1834	70.6	29.4	6.51 (1.76)	2.77 (1.53)
Spain	1400	41.6	58.4	7.31 (1.79)	2.56 (1.40)
<i>Eastern European countries</i>					
Czech Republic	2479	11.3	88.7	6.79 (2.03)	1.87 (1.45)
Estonia	1646	17.8	82.2	6.17 (2.06)	1.52 (1.24)
Hungary	1326	27.2	72.8	6.30 (2.48)	1.82 (1.46)
Poland	1445	20.5	79.5	6.61 (2.27)	2.14 (1.33)
Slovakia	1197	16.4	83.6	6.17 (2.15)	1.89 (1.50)
Slovenia	1194	25.5	74.5	7.09 (1.98)	2.00 (1.43)
Turkey	1599	74.3	25.7	6.64 (2.59)	3.29 (1.17)
Ukraine	1695	18.7	81.3	5.39 (2.39)	1.32 (1.30)

Source: European Social Survey (2004).

Moreover, we observe differences in the variability of *happiness* scores within countries, indicating that they are more spread out in Turkey, Hungary and Ukraine than in other countries. Furthermore, we observe the cross-national variation of the mean country scores of the variable *the use of HS-shp*. Specifically, the lowest average score of this variable is in Ukraine ($M = 1.32, SD = 1.30$), and the highest is in Turkey ($M = 3.29, SD = 1.17$). Finally, Table 2 shows that the sizes of the educational groups differ from country to country. The lowest percentage of people in the educational group with fewer years of education (i.e., group 1) is in Germany (10.1%), while the highest percentage is in Turkey (74.3%).

To determine the relationship between *the use of HS-shp* and happiness, we performed the hierarchical multiple linear regression analysis. The results of this analysis indicate differences in this association in five countries: Greece, Luxembourg, Poland, Portugal and Switzerland (see Table 3). The findings in Greece ($B = 0.070, SE = 0.030, p < 0.05$) and Poland ($B = 0.097, SE = 0.043, p < 0.05$) support our first hypothesis, by suggesting that people who *use more HS-shp* are likely to have higher level of well-being than those who use it less.

However, in Luxembourg ($B = - 0.073, SE = 0.034, p < 0.05$), Portugal ($B = - 0.058, SE = 0.025, p < 0.05$) and Switzerland ($B = - 0.053, SE = 0.026, p < 0.05$) this association has a negative direction, indicating that the well-being of people is likely to benefit *more* from the decreased *use of HS-shp*, than from increased use of it. Moreover, in the remaining 19 countries (Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, the Netherlands, Norway, Slovakia, Slovenia, Spain, Sweden, Turkey, Ukraine, and the United Kingdom), we found no association between the *use of HS-shp* and happiness.

Table 3. The Estimates of the Association between HealthCare Use for Serious Ill-Health and Happiness^(a) in Greece, Luxembourg, Poland, Portugal, and Switzerland

Variables	Greece		Luxembourg		Poland		Portugal		Switzerland	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Intercept	7.680**** (0.212)	7.555**** (0.218)	6.984**** (0.261)	7.135**** (0.270)	6.426**** (0.269)	6.291**** (0.275)	7.289**** (0.206)	7.438**** (0.215)	7.097**** (0.192)	7.162**** (0.194)
Healthcare use	-	0.070* (0.030)	-	-0.073* (0.034)	-	0.097** (0.043)	-	-0.058* (0.025)	-	-0.053* (0.026)
R square	0.112	0.114	0.086	0.089	0.125	0.128	0.142	0.145	0.091	0.093

^(a) Controlled for age, gender, partner status, hampered in daily activities due to health condition, and generalized trust.

Note: * = significant at $p < 0.05$; ** = significant at $p < 0.01$; **** = significant at $p < 0.0001$ (one-tailed tests).

The results of the further regression analysis indicate that the strength of the link between *the use of HS-shp* and *happiness* varies in two educational groups in Czech Republic, Finland, Greece, Hungary, Norway, Poland and Portugal. In particular, in Greece ($B = 0.124, SE = 0.048, p < 0.01$) and Poland ($B = 0.285, SE = 0.102, p < 0.01$), the association between *the use of HS-shp* and *happiness* is significant in the first educational group, but it is absent in the second educational group (see Table 4). The findings in Table 4 suggest that in Greece and Poland, less educated persons are likely to have stronger relationship between *the use of HS-shp* and well-being, than their better educated counterparts. Moreover, the results suggest that the well-being of the less educated is likely to benefit *more* from increased *use of HS-shp* than the well-being of the better educated.

Table 4. The Estimates of the Association between HealthCare Use for Serious Ill-Health and Happiness by the Level of Education^(a) in Greece and Poland

Variables	Greece		Poland	
	Education		Education	
	Group 1	Group 2	Group 1	Group 2
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Intercept	5.995 ^{****} (0.439)	7.760 ^{****} (0.298)	5.262 ^{****} (0.763)	5.622 ^{****} (0.362)
Healthcare use	0.124 ^{**} (0.048)	0.025 (0.037)	0.285 ^{**} (0.102)	0.037 (0.047)
R square	0.121	0.068	0.165	0.105

(a) Controlled for age, gender, partner status, hampered in daily activities due to health condition, and generalized trust.

Note: ** = significant at $p < 0.01$; **** = significant at $p < 0.0001$ (one-tailed tests).

In contrast, in Czech Republic, Finland, Hungary, Norway and Portugal, the relationship between the main variables is absent in the first educational group, but it is significant in the second educational group (see Table 5). In particular, in Finland ($B = 0.067$, $SE = 0.027$, $p < 0.01$), the relationship between *the use of HS-shp* and well-being is likely to be stronger among those with more years of education than among those with few years of education. This finding confirms our second hypothesis, by suggesting that the well-being of the better educated is likely to benefit *more* from increased *use of HS-shp* than the well-being of their less educated counterparts.

However, in Czech Republic ($B = -0.057$, $SE = 0.027$, $p < 0.05$), Hungary ($B = -0.101$, $SE = 0.050$, $p < 0.05$), Norway ($B = -0.064$, $SE = 0.033$, $p < 0.05$) and Portugal ($B = -0.171$, $SE = 0.043$, $p < 0.0001$), this relationship is negative, suggesting that the well-being of the better educated in these countries is likely to benefit *more* from reduced *use of HS-shp* than from increased use of it. In addition, in the remaining 17 countries (Austria, Belgium, Denmark, Estonia, France, Germany, Ireland, Luxembourg, the Netherlands, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom), we found no link between *the use of HS-shp* and well-being in both educational groups.

Table 5. The Estimates of the Association between HealthCare Use for Serious Ill-Health and Happiness by the Level of Education^(a) in Czech Republic, Finland, Hungary, Norway, and Portugal

Variables	Czech Republic		Finland		Hungary		Norway		Portugal	
	Education		Education		Education		Education		Education	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Intercept	4.868 ^{****} (0.830)	6.585 ^{****} (0.203)	5.930 ^{****} (0.525)	6.616 ^{****} (0.220)	4.742 ^{****} (0.743)	6.114 ^{****} (0.370)	7.025 ^{****} (0.747)	6.678 ^{****} (0.253)	7.233 ^{****} (0.265)	7.193 ^{****} (0.412)
Healthcare use	0.041 (0.094)	-0.057 [*] (0.027)	-0.025 (0.054)	0.067 [*] (0.027)	0.164 (0.094)	-0.101 [*] (0.050)	0.125 (0.094)	-0.064 [*] (0.033)	0.001 (0.030)	-0.171 ^{***} (0.043)
R square	0.197	0.145	0.163	0.128	0.184	0.134	0.169	0.145	0.142	0.115

(a) Controlled for age, gender, partner status, hampered in daily activities due to health condition, and generalized trust.

Note: * = significant at $p < 0.05$; *** = significant at $p < 0.001$; **** = significant at $p < 0.0001$ (one-tailed tests).

Discussion

In this paper, we examined the relationship between healthcare use for serious health problems and well-being in different geographical macro-contexts, and we explored whether the extent of individual education matters for this relationship, since knowledge about this interrelationship is scarce. To this end, we have used the data from the transnational European Social Survey, which provides an opportunity for cross-national comparisons of the interrelationship between *the use of HS-shp*, education and well-being, since this survey used similar standardized methods and questionnaires to collect the data on these variables in the participating countries.

Two main findings emerge from this study. First, we found some support for our hypothesis that people's well-being benefits *more* from a greater use of healthcare for serious health problems than from less or no use of it. Specifically, in Greece and Poland, people who use more health services for serious ill-health are likely to have higher levels of well-being than people with the same ill-health who use less health services. However, in Luxembourg, Portugal and Switzerland, this relationship is negative, indicating that the well-being of people with serious health problems (i.e., severe sore throat, severe sleeping problems, severe headache and severe back pain) is likely to benefit *more* from a lower use of such services. In contrast, the results in the remaining 19 countries suggest that there is no relationship between *the use of HS-shp* and well-being. Our findings are thus inconsistent and indicate cross-national differences in the relationship between *the use of HS-shp* and well-being.

Second, we found some support for the hypothesis that the extent of education matters for the relationship between *the use of HS-shp* and well-being. However, the results are inconsistent. In particular, in Finland, the well-being of the better educated is likely to benefit *more* from the increased use of health services for serious health problems than the well-being of the less educated with the same health problems. But, in the Czech Republic, Hungary, Norway and Portugal, the well-being of better educated persons with serious health problems (i.e., severe sore throat, severe sleeping problems, severe headache and severe back pain) is likely to benefit *more* from reduced use of the services provided by a doctor and a nurse, than from increased use of such services. We can only speculate on explanations for these transnational differences, since this study was not designed to identify the underlying processes. However, several explanations could be offered for the negative association between the main study variables, such as patients' limited health literacy, but also their skepticism and dissatisfaction with the organization and the provision or delivery of health services in their country (Calnan & Sanford, 2004; Organisation for Economic Co-operation and Development, 2006; Pescosolido, Tuch, & Martin, 2001; Reibling, 2010; Shonna et al., 2011; Wendt, 2009; Wendt, Kohl, Mischke, & Pfeifer, 2010). It seems plausible to assume that some better educated persons experience barriers to get optimal (instrumental, emotional or informational) support from medical professionals when they use health services for their health problems. Yet, in Greece and Poland, the relationship between *the use of HS-shp* and well-being is likely to be stronger among the less educated than among the more educated. Our results suggest that the well-being of the less educated with serious ill-health is likely to benefit *more* from increased use of healthcare than the well-being of their better educated counterparts with the same health problems. Due to the lack of research on this topic, we can only speculate on the explanations for these findings. Perhaps the less educated in these countries

have been facilitated by specific social programs or policies (such as health education, health literacy and health prevention campaigns) such that their limited educational skills are not a barrier to using healthcare to improve their well-being (Wendt, 2009). Finally, our findings suggest that in the remaining 17 countries there are no educational differences in the relationship between *the use of HS-shp* and well-being, since this association is absent in both educational groups in those countries.

Some data limitations of this study should be mentioned, since they may have affected the results. Firstly, the data used were based on a cross-sectional design, which does not allow distinguishing the cause from the effect. Longitudinal study is needed to overcome this limitation. Secondly, the response rate to the survey was low in the following countries: France (43.6%), Luxembourg (50.1%), the United Kingdom (50.6%), Germany (51%), and Spain (54.9%). Previous research suggests that low response rate is due to low participation of people with few years of schooling and with poor health or well-being (Goldberg et al., 2001; Macera, Jackson, Davis, Kronenfeld, & Blair, 1990; Pietila, Rantakallio, & Laara, 1995; Van Loon et al., 2003). It is possible that selective non-response has led to underestimation of the educational differences in the relationship between *the use of HS-shp* and well-being. Thirdly, it is important to note that we operationalized *the use of HS-shp* using the survey questions on self-reported tendency or intention to use healthcare based on four hypothetical health problems (i.e., severe sore throat, severe sleeping problems, severe headache and severe back pain), because such operationalization strategy is widely recognized and it was used in the previous studies, since intention for care-seeking theoretically precedes actual utilization (Adamson, Ben-Shlomo, Chaturvedi, & Donovan, 2003; Walton & Antony, 2017). However, the validity of data based on self-reporting is often questioned, since self-reporting can be influenced by social desirability and by cultural differences in the interpretation of survey questions (Grol-Prokopczyk and Hauser, 2011; Oishi, 2010). Lastly, in order to assess whether the extent of education matters for the relationship between *the use of HS-shp* and well-being, we constructed two educational groups according to the method used in the previous research (Cavelaars, Kunst, & Mackenbach, 1997). However, the size of these educational groups differs from country to country, which may have affected the comparability of educational differences between countries.

Conclusion

Despite the data limitations, our results offer some important insights. First, the results indicate that there are cross-national differences in the relationship between healthcare use for serious health problems and well-being. Moreover, the results suggest that the extent of education matters for this relationship, however its influence differs across countries. Since research on this topic is scarce, we can only speculate on the explanations of these cross-national differences. Perhaps they can be partly explained by differences in characteristics of health systems or differences in public policies (e.g. social, welfare, education and health policies) of the countries studied, since we assume that government policies may both facilitate and inhibit healthcare use in a way that affects the interrelationship between healthcare use, education and well-being. Therefore, further research is needed to explain these cross-national differences. Future research can provide an additional empirical basis for targeted public policies aimed at reducing well-being differences in well-being within and between countries

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Author Information

Rania F. Valeeva

 <https://orcid.org/0000-0001-8055-7834>

University of Antwerp

Prinsstraat 13, 2000 Antwerp

Belgium

Contact e-mail: Rania.Valeeva@student.uantwerpen.be
