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EDITORIAL

The mark of women's leadership on solutions to global health problems

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"Man is the measure of all things", stated Protagoras in 485 BC (1). Maybe it's time to add women to that equation and adapt Protagoras' saying into:*"women who are leaders are the measure of global health challenges"*.

What Protagoras meant, of course, was that man is the point of reference, the centre of universe; he adjusts his world to fit his needs. In other words, man has the ability to shape his living conditions, the environment and solutions to the challenges in life. In that sense, the challenges are managed according to the terms and conditions of man.

Indeed, global health challenges of the 21st century are widespread. They are many, and they are of great magnitude. World health leaders are challenged by crises such as polio, zika virus, and H1Ni, to mention a few. Many health systems around the world have been challenged to respond effectively to these crises, spotlighting major gaps in worldwide surveillance, disease control, resources, and infrastructure required to protect and support the public's health. The economic crisis that affected Europe has been linked to several infectious disease outbreaks including TB and HIV, compounded by recent waves of migration, although the links between these events remain unclear (2).

Debates ensue about the value and feasibility of universal health coverage, the increasing role of the private sector in the global health landscape and the subsequent changing roles of global health actors that shape the new health economy. These are complex times, and they require skilful players if we hope to translate public and private sector investments in health into both economic growth and equitable improvements in health. Such goals require inspired, inclusive, and effective leadership. These very traits are the hallmark of women's leadership.

Women have been observed to possess certain traits and characteristics that may accelerate effective and sustainable solutions to challenging global health problems. It is widely accepted that women who are leaders act as a normative agent of change and developmental processes (3-8). They practice people-centred, inclusive leadership and balance strategic priorities with collective dynamics. In this regard, they may exhibit greater mastery as compared to men in relation to key competencies required to make progress.

One may argue that we experience a collision of worlds in respect of the old and the new tradition of gender-based roles in global health governance, and the implications for our freshly made, globalized world. However, the balance of global gender roles in our contemporary world is the outcome of politics and power. That balance can be changed to benefit global health.

If the collective political community *"aims at some good and the community which has the most authority of all and includes all the others aims highest"*(9), then, our current, turbulent suffering societies expect global leaders to practice the quality of leadership as described by Plato (10). That form of leadership combines the following components:

- *wisdom*, as the knowledge of the whole including both knowledge of the self and political prudence;
- *civic courage*, in the sense of preserving rights and standing in defence of such values as friendship and freedom on which a good society is founded, and;
- *moderation*, a sense of the limits that bring peace and happiness to all.

Global health leadership falls behind in providing the opportunities and motivation to female leaders to unfold their talents and give their touch to new health challenges. The huge reservoir of talented women remains mostly untapped. The transformative attributes of female leaders to create opportunities out of a web of complexity, to promote systematic preparedness and to create a starting point for change out of chaos have been underestimated and sacrificed to stereotypes and social constraints.

Of course, numerous notable initiatives have been introduced; important foundations have been established and contribute considerably towards this end. Nonetheless, the relative lack of women who are leaders in top decision-making positions in global health should be looked upon like a well-diagnosed, but mistreated disease.

What kind of politicians and leaders do we need to provide the proper room for experiencing the mark of women on global health challenges? Maybe politicians and decision-makers should be wise enough to adapt the saying of Protagoras (1). From now on, let's call loudly for women who are leaders to be *"the measure of global health challenges"*!

Conflicts of interest: None.

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Duval L, Wolff FC, McKee M, Roberts B. Ethnic differences in smoking behaviour: The situation of Roma in Eastern Europe (Original research). SEEJPH 2016, posted: 14 December 2016. DOI:10.4119/UNIBI/SEEJPH-2016-132

ORIGINAL RESEARCH

Ethnic differences in smoking behaviour: The situation of Roma in Eastern Europe

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Abstract

Aim: To investigate ethnic differences in smoking between Roma and non-Roma and their determinants, including how discrimination faced by Roma may influence smoking decisions.
Methods: We analysed data from the Roma Regional Survey 2011 implemented in twelve countries of Central and South-East Europe with random samples of approximately 750 households in Roma settlements and 350 households in nearby non-Roma communities in each country. The overall sample comprises 11,373 individuals (8,234 Roma) with a proportion of women of 57% and an average age of 36 years. Statistical methods include marginal effects from Probit and zero-truncated negative binomial estimates to explain cigarette consumption.
Results: We found that Roma have a higher probability of smoking and are heavier smokers compared to otherwise comparable non-Roma. These differences in smoking behaviour cannot purely be explained by the lower socio-economic situation of Roma since the ethnic gap remains substantial once individual characteristics are controlled for. The probability of smoking is positively correlated with the degree of ethnic discrimination experienced by Roma, especially when it is related to private or public health services.
Conclusions: By providing evidence on smoking behaviour between Roma and non-Roma in a large number of countries, our findings support the need to understand smoking behaviour of Roma from a comparative perspective, and may ultimately contribute to more effective anti-smoking messages for Roma. However, if the health disadvantage faced by Roma is to be addressed adequately, this group must be involved more effectively in the policy and public health process.

Keywords: Central and South-East Europe, cigarette smoking, discrimination, ethnicity, Roma.

Conflicts of interest: None.

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Introduction

While much is now known about the determinants of smoking, relating both to individuals (such as gender, age, marital status, and socio-economic characteristics), and product characteristics (such as price, availability, and marketing) (1-9), there has been less attention to ethnic differences in smoking behaviour, even though tobacco control measures may need to take account of factors, such as health beliefs, that might influence the effectiveness of certain policies and messages (10-12).

Roma are the largest ethnic minority group in Europe (estimated to number 10-12 million), most living in Central and South-East Europe (13). They suffer multiple disadvantages, with lower education, worse living conditions, and lower socio-economic status (14-17) and face discrimination in many areas of life, including barriers in accessing health services and health information (18-22). Consequently, Roma have worse health on many measures (15,17,19) than the majority populations in the same countries.

Research on the Roma population has largely focused on communicable diseases and child health (18), but more recent contributions have also investigated non-communicable diseases and health care (17,23). However, there have been fewer studies on health behaviours, although those that have been conducted show increased prevalence of risk factors, including smoking (24,25). Paulik and colleagues (23) report attitudes to tobacco control from a small cross-sectional survey, with only 83 Roma and 126 non-Roma, finding Roma respondents reluctant to accept restrictions on tobacco use. Petek and colleagues (26) conducted a small qualitative study of the meaning of smoking in Roma communities in Slovenia, but with only three women and nine men of Roma origin. They reported how smoking is seen as part of the cultural identity of Roma and is accepted by men, women and children, while invoking fatalism and inevitability to explain why smoking is not identified by Roma interviewed as a threat to health (26).

Given growing recognition of the role of smoking-related disease in perpetuating or accentuating health inequalities and lack of evidence on tobacco use among Roma, the aim of the present study is to investigate ethnic differences in smoking between Roma and non-Roma as well as their determinants, which includes how discrimination faced by Roma may influence smoking.

Methods

Data and samples

We use data from the Roma Regional Survey, a cross-sectional household survey commissioned by the United Nations Development Programme, the World Bank and the European Commission. Further details on the survey methodology can be found at: http://www.eurasia.undp.org/content/rbec/en/home/ourwork/sustainable-development/development-planning-and-inclusive-sustainable-growth/roma-in-central-and-southeast-europe/roma-data.html

The sample comprises both Roma (N=9,207) and non-Roma (N=4,274) households living in countries with high proportion of Roma, namely Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, Macedonia, Moldova, Montenegro, Romania, Serbia and Slovakia.

The survey was conducted from May to July 2011. The intention was to include Roma living in distinct settlements and compare them with non-Roma living nearby. Given this intention,

it would have been inappropriate to compare what are known to be very deprived Roma settlements (27) with the general population, which would include many affluent groups who have little in common with those living in the settlements. Consequently, 350 non-Roma households living in the same neighbourhood – defined as households living in close proximity, within 300 meters, of a Roma settlement – were selected. A stratified cluster random sampling design was used. Thus, the first stage sampling frame comprised known Roma settlements, from which those to be included were sampled at random. Then non-Roma settlements nearby were selected, again at random. In the second sampling stage, households were randomly chosen with equal probability within each cluster for both populations.

The method of data collection was face-to-face interviews at the respondent's household. The overall sample comprised 13,481 households corresponding to 54,660 family members. Among them, 9,207 households were Roma (68.3%) and 4,274 were non-Roma (31.7%). We focus on the current smoking behaviour of respondents aged between 16 and 60 at the time of the survey. There is no information in the survey on past smoking decisions. This leaves us with a sample comprising 11,373 individuals, 8,234 of whom were Roma (72.4%).

The survey covers demographic characteristics, education, employment status, living standards, social values and norms, migration, discrimination, and health. Socio-economic status is proxied using a household asset index. This aggregate index is derived from a principal component analysis of a list of household possessions following the methodology described by Filmer et al. (28). The list of items included comprises radio receiver, colour TV, bicycle or motorbike, car/van for private use, horse, computer, internet connection, mobile phone or landline, washing machine, bed for each household member including infants, thirty and more books except school books, and power generator. The principal component technique was implemented on the entire sample, pooling Roma and non-Roma individuals. Higher values of the asset index correspond to higher long-run socioeconomic status.

The characteristics of respondents are summarised in Table 1.

Table 1. Descriptive statistics of the sample (N=11,373)

Variables	(1) All respondents	(2) Roma Respondents	(3) Non-Roma respondents	(4)p-value of (2)-(3)
Female	57,7%	57,8%	57,6%	0.848
Age in years	36,0	35,0	38,8	0.000
In a couple	69,5%	71,4%	64,5%	0.000
Divorced – separated	8,0%	7,9%	8,3%	0.473
Widowed	5,0%	5,2%	4,7%	0.330
Single	17,5%	15,6%	22,5%	0.000
Household size (number of persons)	4,3	4,7	3,5	0.000
No formal education	18,4%	24,8%	1,6%	0.000
Primary education	20,7%	26,4%	5,7%	0.000
Lower secondary education	34,2%	36,9%	27,1%	0.000
Upper/post-secondary education	26,7%	11,8%	65,7%	0.000
Paid activity – self-employed	31,7%	25,8%	47,2%	0.000
Homemaker – parental leave	19,7%	21,7%	14,2%	0.000
Retired	5,2%	4,1%	8,2%	0.000
Not working – other	43,4%	48,4%	30,4%	0.000
Asset index (value)	0,0	-0,6	1,5	0.000

Capital/district center	33,5%	33,0%	34,7%	0.103
Town	26,1%	26,2%	25,8%	0.665
Village/unregulated area	40,4%	40,8%	39,6%	0.238
Number of respondents	11,373	8,234	3,139	

Source: authors' calculations, UNDP/WB/EC Regional Roma Survey 2011.

About 58% are women and the average age is 36 years. On average, Roma are younger than non-Roma (35.0 versus 38.8). Roma have lower educational attainment and are more likely to be outside the formal labour market. Overall, scores on the asset index are worse for Roma (-0.563 compared to 1.477 for the non-Roma), although the scale of relative disadvantage varies, with the largest gaps in Croatia, Romania and Bulgaria.

For smoking behaviour, we used the two following questions. First, respondents indicated whether they smoked or not at the time of the survey: "with regard to smoking cigarettes, cigars, or a pipe, which of the following applies to you?". Possible answers were "I currently smoke - daily", "I currently smoke - occasionally", "I used to smoke but have stopped" and "I have never smoked". Second, those reporting one of the first two answers (either daily or occasionally) were asked: "on average, how many cigarettes, manufactured or hand-rolled do you smoke each day?". Note that it may be more difficult for occasional smokers to assess their daily consumption.

To examine the role of discrimination, we used the three following questions: i) "does your household have a doctor to approach when needed?"; ii) "do you feel safe in regards health protection – do you have the confidence that you will receive service in case you need it?"; and iii) "were there any instances in the past 12 months when your household could not afford purchasing medicines prescribed to, needed for a member of your household?". We also included in our regressions variables from a specific section about general discrimination and rights awareness. Discrimination is defined as being treated less favourably than others because of a specific personal feature such as age, gender or minority background. Self-assessed discrimination was assessed with the following question: "in the past 12 months (or since you have been in the country), have you personally felt discriminated against on the basis of one or more of the following grounds: a) because of ethnicity for non-Roma, because you are a Roma for Roma, b) because you are a woman/man, c) because of your age, d) because of your disability, e) for another reason".

Finally, we investigated the role played by access to health care system using answers to the following question: "during the last five years; have you ever been discriminated against by people working in public or private health services? That could be anyone, such as receptionist, nurse or doctor." The reason attributed to the discrimination was specified: it could be either a discrimination on the basis of ethnic background or a discrimination because of other reasons.

Statistical analysis

We analysed the determinants of smoking behaviour both in terms of smokers versus non-smokers and number of cigarettes among smokers. To isolate as far as possible the role of ethnicity, we adjusted for the following individual characteristics, available for each household member: gender, age, marital status, household size, education level, asset index, occupation and location (capital or district centre, town, village or rural area).

We compared the pattern of smoking not only by ethnicity, but also by country to account for the potential role of country-specific factors such as tobacco price. As an initial comparison

showed that Roma were, as expected, materially worse off, we turned to an econometric analysis to explain both the decision to smoke and the consumption of cigarettes among smokers. We began with an investigation of the determinants of the probability of smoking using Probit regressions, with marginal effects for various specifications (Table 3). We also examined correlates of smoking intensity among smokers. Since the dependent variable had non-negative integer values, we used count data models and estimated a zero-truncated negative binomial regression to account for over-dispersion as in (29,30). Finally, we investigated the role of discrimination as a potential factor explaining the widespread smoking behaviour among the Roma population (Table 4).

Results

Determinants of cigarette consumption

A comparison of cigarette consumption by ethnicity and country in Table 2 shows that, while overall the proportion of smokers is 50.0%, there are substantial differences between countries. When pooling all countries, we found a much higher proportion of smokers among Roma than non-Roma (columns 2-4). The gap between these groups amounted to 15.5 percentage points. The prevalence differential was greatest in the Czech Republic (+31.4 points for Roma), followed by Hungary (+23.7 points), Slovakia (+22.7 points) and Bosnia and Herzegovina (+22.6 points). Conversely, there was no significant difference between Roma and non-Roma in Bulgaria, Macedonia and Montenegro. The situation was a little different in terms of intensity of smoking. There were significant differences in daily number of cigarettes (among smokers) between Roma and non-Roma in only four countries: Czech Republic (+3.8 cigarettes for Roma), Bosnia and Herzegovina (+3.1 cigarettes), Slovakia (+1.6 cigarettes) and Moldova (-5.1 cigarettes).

Table 2. Cigarette consumption, by ethnicity and country

Country	Proportion of current smokers (in %)				Cigarette consumption among smokers			
	(1) All	(2) Roma	(3) Non-Roma	(4)p-value of (2)-(3)	(5) All	(6) Roma	(7) Non-Roma	(8)=p-value of (6)-(7)
Albania	33.5	36.6	26.5	0.002	17.7	17.7	17.5	0.832
Bosnia and Herzegovina	54.6	61.1	38.5	0.000	21.2	21.8	18.7	0.009
Bulgaria	51.7	53.3	46.8	0.108	12.0	11.8	12.9	0.233
Croatia	57.3	64.1	38.4	0.000	16.1	16.2	15.5	0.766
Czech Republic	68.7	78.0	46.6	0.000	15.1	15.9	12.1	0.000
Hungary	55.2	61.3	37.6	0.000	15.5	15.4	16.1	0.469
Macedonia	42.1	43.2	39.3	0.279	17.2	17.4	16.6	0.443
Moldova	29.8	33.5	19.4	0.000	16.7	15.9	21.0	0.004
Montenegro	42.5	42.4	42.7	0.946	22.3	22.8	21.0	0.057
Romania	46.7	50.5	34.8	0.000	12.8	12.8	12.8	0.728
Serbia	58.9	61.7	51.5	0.004	18.4	18.3	18.7	0.627
Slovakia	57.4	64.2	41.5	0.000	14.2	14.5	12.9	0.005
All countries	50.0	54.2	38.7	0.000	16.5	16.7	16.2	0.139

Source: authors' calculations, UNDP/WB/EC Regional Roma Survey 2011.

We examined the role of individual characteristics in explaining differences in cigarette consumption between Roma and non-Roma. As shown in column 1A of Table 3, we found a positive correlation between the ethnic dummy and the smoking decision. At the sample means, the probability of smoking was 16.1 percentage points higher among Roma compared

to non-Roma. This marginal effect accounted for the role of country heterogeneity. The country dummies in the regression captured the influence of differences in tobacco prices as well as other unobserved differences in anti-smoking policies or tobacco advertising.

Next, we accounted for by individual characteristics, given the demographic and socio-economic differences in Roma and non-Roma respondents (column 2A). Our main result was that the Roma dummy was still positively correlated with the propensity to smoke at the one per cent level of significance. However, controlling for differences in respondents' characteristics strongly reduced the marginal effect of ethnic origin. Being Roma was now associated with an increase of 8.5 percentage points in the probability of smoking.

We also estimated separate regressions for each ethnic group (columns 3A and 4A). Many covariates such as gender, age, household size or education had a similar influence on the likelihood of smoking among Roma and non-Roma, but we noted some differences. For instance, the marginal effect associated with the asset index was three times higher for non-Roma compared to Roma. Similarly, having a paid activity and being homemaker were significantly correlated with probability of smoking (respectively positively and negatively) only for non-Roma. In column 1B, we found a positive correlation between Roma origin and cigarette consumption. In column 2B, the positive effect of Roma origin was still significant (at the five percent level) once individual characteristics were controlled for.

Table 3. Probit and zero-truncated negative binomial estimates of cigarette consumption – marginal effects

Variables		Probability of smoking				Cigarette consumption among smokers			
		(1A) All	(2A) All	(3A) Roma	(4A) Non-Roma	(1B) All	(2B) All	(3B) Roma	(4B) Non-Roma
Roma		0.161**	0.085**			0.734*	0.927*		
		(15.15)	(5.91)			(2.39)	(2.49)		
Female			-0.138**	-0.125**	-0.166**		-2.784**	-2.892**	-2.034**
			(-12.69)	(-9.60)	(-8.64)		(-9.82)	(-8.76)	(-3.65)
Age (ref: ≤20)	21-30		0.090**	0.067**	0.143**		2.374**	2.123**	3.587*
			(4.85)	(3.26)	(3.35)		(4.33)	(3.59)	(2.37)
	31-40		0.123**	0.105**	0.128**		3.214**	2.800**	4.896**
			(6.28)	(4.86)	(2.81)		(5.53)	(4.48)	(3.01)
	41-50		0.157**	0.158**	0.129**		4.168**	3.993**	5.090**
			(7.61)	(6.87)	(2.75)		(6.44)	(5.65)	(2.98)
	51-60		0.119**	0.117**	0.090		4.103**	3.485**	6.028**
			(5.32)	(4.63)	(1.85)		(5.83)	(4.54)	(3.29)
Marital status (ref: In a couple)	Divorced – separated		0.035	0.042	0.031		0.508	0.577	0.392
			(1.87)	(1.93)	(0.92)		(1.07)	(1.06)	(0.41)
	Widowed		0.032	0.035	0.004		-0.050	-0.204	1.153
			(1.32)	(1.26)	(0.09)		(-0.08)	(-0.30)	(0.77)
	Single		-0.031*	-0.041*	-0.057*		-0.185	-0.724	1.205
			(-2.00)	(-2.19)	(-2.08)		(-0.47)	(-1.59)	(1.48)
Household size			0.007**	0.006*	0.015*		0.085	0.107	-0.017
			(2.81)	(2.09)	(2.30)		(1.36)	(1.60)	(-0.09)
Education Primary (ref: no formal)			0.002	-0.001	-0.110		-0.958*	-1.040**	-0.273
			(0.15)	(-0.08)	(-1.48)		(-2.48)	(-2.60)	(-0.13)
	Lower secondary		-0.008	-0.028	-0.102		-1.071**	-1.337**	-0.688
			(-0.55)	(-1.68)	(-1.44)		(-2.77)	(-3.25)	(-0.38)
	Upper/post-secondary		-0.061**	-0.090**	-0.138		-1.459**	-1.595**	-0.593
			(-3.17)	(-3.95)	(-1.89)		(-3.08)	(-3.04)	(-0.31)
Activity (ref: not working – other)	Paid activity – self-employed		0.023	0.021	0.039		0.188	0.262	0.397
			(1.81)	(1.43)	(1.66)		(0.60)	(0.72)	(0.62)
	Homemaker – parental leave		-0.019	-0.013	-0.065*		-0.511	-0.615	0.256
			(-1.35)	(-0.83)	(-2.11)		(-1.37)	(-1.52)	(0.26)
	Retired		-0.089**	-0.071*	-0.098*		-1.098	-0.925	-1.331
			(-3.58)	(-2.22)	(-2.56)		(-1.73)	(-1.21)	(-1.16)
Asset index			-0.026**	-0.016**	-0.048**		0.189*	0.266**	-0.101

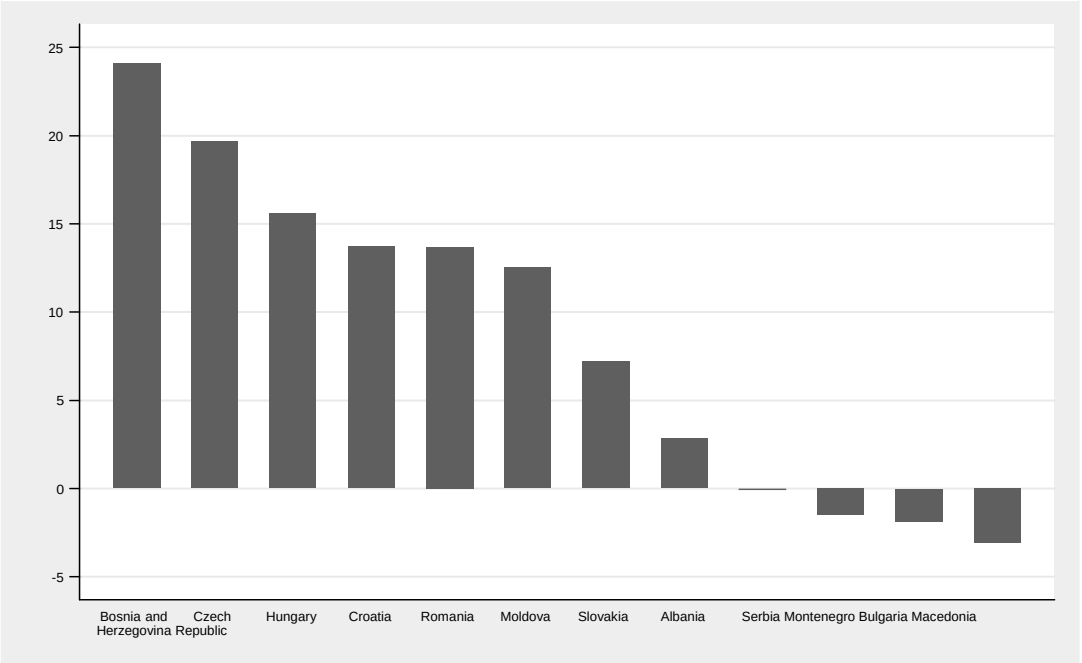
			(-7.62)	(-4.00)	(-7.58)		(2.15)	(2.63)	(-0.56)
Location	Town		-0.040**	-0.050**	0.001		-1.445**	-1.570**	-1.112
(ref: Capital/district center)			(-2.96)	(-3.14)	(0.03)		(-4.38)	(-4.19)	(-1.61)
	Village/unregulated area		-0.049**	-0.039**	-0.059*		-2.186**	-2.360**	-1.437*
			(-3.81)	(-2.63)	(-2.50)		(-6.87)	(-6.53)	(-2.15)
Country dummies		YES	YES	YES	YES	YES	YES	YES	YES
Number of respondents		11,373	11,373	8,234	3,139	5,682	5,682	4,466	1,216

Source: authors' calculations, UNDP/WB/EC Regional Roma Survey 2011.
Note: the probability of smoking is explained using a Probit model, the cigarette consumption among smokers is explained using a zero-truncated negative binomial model. Significance levels are p<0.01 (**) and p<0.05 (*).

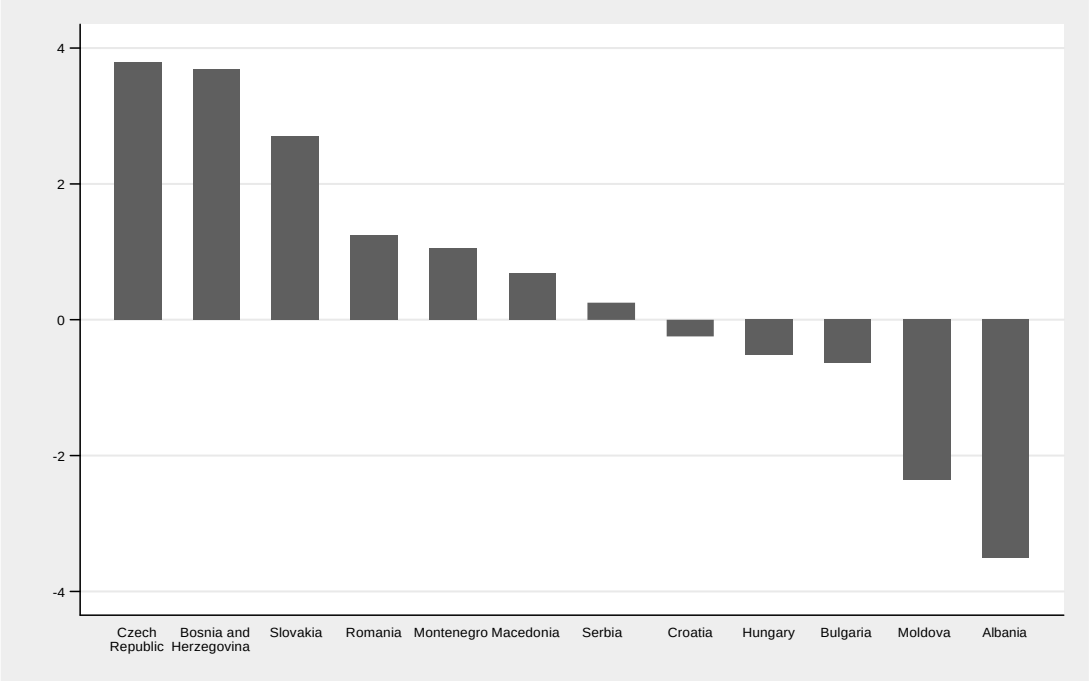
When comparing the estimates obtained separately on the Roma and non-Roma samples (columns 3B and 4B), the correlation between consumption of cigarettes and gender, age as well as location had the same sign for both ethnic groups. Conversely, we observed some differences in the role of education and asset index among smokers. First, the negative correlation between education and cigarettes was only significant for Roma. Second, we found a positive correlation between consumption of cigarettes and the asset index only for Roma. As Roma are economically disadvantaged, only those with adequate resources will be able to purchase and smoke cigarettes.
Finally, we estimated country-specific regressions. For ease of interpretation, we presented the marginal effect associated with the Roma dummy (Figure 1).

Figure 1. The gap in smoking between Roma and non-Roma, by country

A. Probability of smoking



B. Cigarette consumption among smokers



Source: authors' calculations, UNDP/WB/EC Regional Roma Survey 2011.

The probability of smoking was 24.1 percentage points higher among Roma than non-Roma in Bosnia and Herzegovina. The gap was significant in seven other countries: by decreasing order of magnitude, the Czech Republic (19.7 percentage points), Hungary (15.6), Croatia (13.7), Romania (13.7), Moldova (12.5), Slovakia (7.1) and Albania (2.8). Roma consumed additional cigarettes per day in the Czech Republic compared to non-Roma smokers. The situation was very similar in Bosnia and Herzegovina (+3.7 cigarettes), Slovakia (2.7), Romania (1.3) and Montenegro (1.1).

Smoking and discrimination

The proportion of respondents who felt discriminated against because of ethnicity was much higher among Roma (34.6%) than non-Roma (4.9%) (+29.7 percentage points). The ethnic differential was lower but still significant when considering other forms of discrimination: +6.9 points because of gender (8.3% for Roma compared to 3.1% for non-Roma), +1.9 points because of age (6.2% against 4.3%) and +1.8 points because of disability (3.6% against 1.8%). When pooling the various reasons, the ethnic gap amounted to 26 percentage points (36.7% against 16.7%).

We added indicators of health inequalities to our previous regressions explaining smoking decisions (panel A of Table 4).

Table 4. Discrimination and cigarette consumption – marginal effects from Probit and zero-truncated negative binomial models

Variables	Probability of smoking				Cigarette consumption among smokers			
	(1A) All	(2A) All	(3A) Roma	(4A) Non-Roma	(1B) All	(2B) All	(3B) Roma	(4B) Non-Roma
Panel A:								
Roma	0.085**	0.081**			0.927*	0.920*		
	(5.91)	(5.63)			(2.49)	(2.47)		

Doctor to approach when needed		0.037*	0.033	0.050		0.211	0.336	-0.826
		(2.23)	(1.82)	(1.31)		(0.50)	(0.74)	(-0.69)
Feel safe in regards health protection		-0.015	-0.015	-0.012		-0.219	-0.155	-0.401
		(-1.11)	(-0.95)	(-0.44)		(-0.63)	(-0.41)	(-0.49)
Cannot afford purchasing medicine prescribed		0.032**	0.028*	0.033		0.027	0.012	0.258
		(2.92)	(2.34)	(1.46)		(0.10)	(0.04)	(0.40)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Number of respondents	11,373	11,373	8,234	3,139	5,682	5,682	4,466	1,216
Panel B:								
Roma	0.085**	0.077**			0.927*	0.828*		
	(5.91)	(5.27)			(2.49)	(2.19)		
Discriminated against in the past 12 months		0.041**	0.034**	0.045		0.482	0.450	0.269
		(3.62)	(2.80)	(1.55)		(1.67)	(1.46)	(0.32)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Number of respondents	11,373	11,373	8,234	3,139	5,682	5,682	4,466	1,216
Panel C:								
Roma	0.085**	0.072**			0.927*	0.825*		
	(5.91)	(4.93)			(2.49)	(2.17)		
Discriminated against in the past 12 months because of ethnicity		0.059**	0.060**	-0.001		0.399	0.187	1.582
		(4.62)	(4.40)	(-0.02)		(1.26)	(0.56)	(1.23)
Discriminated against in the past 12 months because of other reasons		-0.038*	-0.058**	0.043		0.172	0.482	-1.376
		(-2.30)	(-3.10)	(1.21)		(0.41)	(1.03)	(-1.50)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Number of respondents	11,373	11,373	8,234	3,139	5,682	5,682	4,466	1,216
Panel D:								
Roma	0.085**	0.079**			0.927*	0.891*		
	(5.91)	(5.46)			(2.49)	(2.38)		
Discriminated against by people working in health servicesbecause of ethnicity		0.078**	0.072**	0.057		0.467	0.238	3.901
		(4.29)	(3.84)	(0.79)		(1.06)	(0.53)	(1.54)
Discriminated against by people working in health servicesbecause of other reasons		-0.053	-0.060	-0.035		-0.409	0.146	-4.160*
		(-1.79)	(-1.84)	(-0.49)		(-0.55)	(0.18)	(-2.41)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Number of respondents	11,373	11,373	8,234	3,139	5,682	5,682	4,466	1,216

Source: authors' calculations, UNDP/WB/EC Regional Roma Survey 2011.
Note: the probability of smoking is explained using a Probit model, the cigarette consumption among smokers is explained using a zero-truncated negative binomial model. Significance levels are p<0.01 (**) and p<0.05 (*).

We found that people who could approach a doctor when needed has a higher probability of smoking (column 2A). This result is seemingly counterintuitive but it may be that those living in areas with access to a doctor have higher (unobserved) levels of income or can more easily buy cigarettes. However, there may also be reverse causation as smokers are likely to have more health problems and thus more frequent interactions with doctors. While feeling safe had no influence on smoking, the correlation between probability of smoking and inability to purchase medicines prescribed was positive for Roma respondents only (column 3A). None of our indicators of health inequalities had an influence on intensity of cigarette consumption among smokers.

In Panel B of Table 4, we found a positive correlation between smoking behaviour and feeling of discrimination (whatever its reason). The probability of smoking increased by 4.1 percentage points for those who felt discriminated against (column 2A). The role played by discrimination was mainly observed in terms of probability rather than intensity of smoking. The correlation between discrimination and cigarette consumption among smokers was not significant when separating Roma and non-Roma (columns 2C and 2D).As shown in Panel C, most of the effect came from discrimination on the basis of ethnic background. Indeed, the coefficient associated with ethnic discrimination was positive and significant, but it was negative for other forms of discrimination.

As a final step, we explored the correlation between smoking and discrimination in access to the health care system (Panel D). The probability of smoking is higher among respondents

who felt discriminated against by people working in health services on ethnic grounds (+7.8 points). Conversely, the correlation is negative for the other forms of discrimination (-5.3 points) while there was no significant relationship with smoking intensity.

Discussion

In this paper we compared the smoking behaviour of Roma and those in the majority population living nearby in twelve countries of Central and South-East Europe. The strengths of this study lie in the use of a large study sample across multiple countries. Previous research on Roma health tends to be restricted to a small number of countries, mainly Hungary, the Czech Republic and Slovakia (15,16,23,26), and which often use small sample sizes which make comparisons between Roma and non-Roma groups of population difficult.

This study is, however, subject to a number of limitations. First, by design, it does not provide a representative sample of the Roma population in the countries concerned. This is an inevitable and well-known problem facing all research on Roma health, reflecting problems of defining the Roma population (31). There are varying degrees of assimilation in each country and estimates of the Roma population vary, reflecting in part the reason why a particular survey was undertaken and thus the incentive to self-identify as Roma. Furthermore, in some situations there may be strong disincentives to do so, given the previous experience of this population in their dealings with authority. For this reason, much of the existing research has adopted the approach used here, focussing on the most marginalised Roma groups, and the most easily and consistently identifiable.

Second, the sample size in each country is relatively small, limiting the power to compare sub-groups.

Third, there is a need for qualitative research to understand better the place that smoking occupies within Roma communities and the barriers that exist to reducing smoking rates. Qualitative research has found that smoking is important in cultural and ethnic identity of Roma, with smoking being introduced by older family members to younger ones. Even where there is awareness of health risks associated with smoking, there is little willingness to consider quitting, to reduce exposure to second-hand smoke, or to prohibit children from smoking because it is considered part of growing up (23). Policies that attempt to limit tobacco access to children or eliminate smoking in public places are rejected (26).

Fourth, some factors that might influence smoking behaviour are missing from the Roma Regional survey. For instance, we could not include household income in our regressions, although we were able to use an asset index, which captures household wealth.

Fifth, interpretation of findings on discrimination is complex. From an individual perspective, the perception of discrimination is a sensitive topic. Feeling discriminated against is subjective and may be subject to justification bias. This would occur if Roma respondents report being discriminated in order to justify their smoking decision. At the same time, according to the EU-MIDIS report on discrimination argues, discrimination against Roma seems to be largely unreported (32).

Finally, a limitation, inherent in the cross-sectional design, is that we are unable to show a causal association between discrimination and smoking. It may be that Roma decide to smoke because they feel less accepted by the rest of the population, but their higher smoking prevalence may also be perceived as a potential signal of their ethnicity, as noted above.

Our findings show that Roma respondents are more likely to smoke and are heavier smokers on average compared to non-Roma (with substantial heterogeneity in the gap between the

two groups between countries).A recent study found no genetic basis for differences in smoking among Roma and non-Roma in Hungary (33). Now, this study shows that differences in smoking behaviour cannot simply be explained by the worse socio-economic situation of Roma. First, the non-Roma comparison population comprises those living in close proximity to Roma settlements and not the general population. Thus, our data will presumably underestimate the overall gap between the Roma and non-Roma population in each country. Second, the ethnic gap remains substantial once individual characteristics are controlled for, although of course it is possible that our indicators do not fully capture relative disadvantage. Importantly, this conclusion is consistent with another study using a different data set but similar methodology in Hungary (34).

We also find some positive correlation between the probability of smoking and discrimination reported by Roma, especially with respect to private or public health services, but not in terms of smoking intensity. Our findings support other literature on the disadvantage and discrimination faced by Roma in Central and South-East Europe (13,15,21,22,35,36) with Roma considered by some as the most discriminated against group in Europe (32). This reinforces the importance of developing messages through a shared process, involving Roma participation, and in ways that avoid stigmatisation, as part of comprehensive policies to tackle disadvantage and discrimination (37).

Conclusions

To the best of our knowledge, this study is the first to provide comparative evidence on smoking behaviour between Roma and non-Roma in a large number of countries. Our findings support the need to understand smoking behaviour of Roma from a comparative perspective, and may ultimately contribute to improved anti-smoking policies towards Roma. If Roma health vulnerability is to be addressed adequately, efforts need to be concentrated on involving Roma in the policy and public health process, including measures that specifically address the factors that lead to high rates of smoking in this multiply disadvantaged population.

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ORIGINAL RESEARCH

The relevance of ethics in the European Union's second public health programme

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Abstract

Aim: The objective of this paper was to investigate whether ethical values were explicitly identified in the Second Public Health Programme (2008-2013) of the European Commission.
Methods: A qualitative case study methodology of exploratory nature was followed. The data used were the summaries of the project proposals and Public Health Programme objectives and was retrieved from the publicly available Consumers, Health and Food Executive Agency database. Since the PHP was finalized during the study, the study only focused on the summaries of the fifty-five finalized project proposals while excluding the ongoing projects and those projects at the reporting stage. The full proposals for the projects are confidential and thus could not be retrieved. However, the project summaries were inarguably sufficient to conduct the study. Using a table, a content analysis method in addition to the ethical framework, was applied in order to analyze and categorise the project findings.
Results: The results unfold that, out of the seven ethical principles, only 'equity' and 'efficiency' were explicitly considered in eighteen projects and four projects respectively. Moreover, from the shared health values, eight projects identified aspects pertaining to 'accessibility to quality health care' while 'solidarity' was only discussed in one project. Lastly, the ethical aspects 'ethics' and 'values' were identified in three projects and in one project respectively.
Conclusions: From the results, there is a limited consideration of ethical principles within the projects. Therefore, future public health programmes could use this as an opportunity to emphasis on the inclusion and application of ethical principles in public health projects.

Keywords: accessibility for quality health care, efficiency, equity, respect for human dignity, universality.

Conflicts of interest: None.

Introduction

In the recent years, there has been an increased focus on implementing policies that promote better health, that are cost effective and use targeted strategies against targeted ill-health worldwide. This interest has sparked an even greater concern for public health practices, as well as how ethics is observed with regards to health, especially since populations continue to suffer from emerging health challenges (1). It is also commonly known that human health is greatly influenced or affected by public health practices as well as socio-economic circumstances of individuals. In a response to solve this, researchers are constantly evaluating and checking their research work against ethical aspects of public health; assessing whether the recommendations that are or can be derived from their work can be ethically justified. Even though there has been a growing interest on how ethics applies to public health, it has not yet gained a prominent position in all public health research. With the increasing burden of disease and emergent public health programmes, it is important to emphasize the need for public health ethics and develop this interest into maturity in order for it to have benefits (2). Ethics is an academic discipline that questions what is required to be done, what is right, fair, just and good. Therefore, ethics clearly defined is the study of human values and reasoning, but also refers to the systematizing of these values or rules or moral conduct that guides human lives. Through the application of ethics, policy makers are able to frame policies and make critical decisions (3). The rise in the study of how public health and ethics are connected has been gradually developing in the past last years, due to human mal-practices, actions and problems in healthcare practice. Public health focuses on ways to detect and quantify factors that put the population's health at risk, once these factors are quantified policies are formulated to tackle or reduce adverse health outcomes for the population (4). Public health ethics is concerned with the dissemination of health resources in a more equitable, efficient way and protecting the society (5).

Numerous studies have been carried out on ethics and public health actions and these have led to normative frameworks of public health ethics. Hence, one could assume that ethical aspects are considered by researchers and public health professionals to be significant in enabling a functioning plan, execution and development of various public health programs. Within the European Commission, the 2007 Health Strategy 'Together for Health' is a better example of a health policy that considers values, as it is based on shared values. Moreover, founded on these values, the second PHP 2008-2013 was implemented (6). It therefore goes without saying that when ethics are considered, public health is safeguarded, particularly when the ethical aspects are predicted or recognized in advance through critical investigations and discussions (7).

An example of how ethical values can be considered in different public health disciplines is through Gostin's work. Gostin looks at public health ethics from three viewpoints. The first is ethics of public health, by which professionals need to work for the common good with regards to their public duty and trust from the society. The second, ethics in public health, involves examining the position of ethics in public health. It involves communal and individual interests in relation to the allocation of returns and harms in an equitable way, e.g. in decision making and implementation of public health policies. Ethics for public health, Gostin's third point, mainly entails a healthy population where the needs of the vulnerable and marginalized populations are considered in a more practical manner (8). As outlined in Gostin's perspectives, the ethical framework applied in this paper acts as an umbrella to ascertain whether the professionals carrying out the projects are working for the good of the

public, whether the allocation and distribution of resources is fair, and whether the needs of the minorities are taken into consideration to ensure a healthy population.

Ethical principles and standards are not only important for public health, they are also considered important for other disciplines, institutions and they have been used in recent years to guide professional conduct and behaviour (9). The European Union (EU) is an example of such organizations, it does not only fund research through its framework programmes, but also monitors how health research is done or how projects are implemented (European Union, n.d). Through the health programme funding, the Directorate General for Health and Consumer Affairs (DG SANTE) oversees the health programme which is managed by the Consumers, Health and Food Executive Agency (CHAFEA) (Chafea, n.d).

Every year, the European Commission through CHAFEA sends a call for proposal for operating grants, conferences as well as joint actions and sets the criteria for funding options available (Chafea, n.d). The European Commission has so far adopted three Public Health Programmes (hereafter referred to as PHP). In this work, we will focus on the second PHP 2008-2013 because of its significance in forming part of the Commission's execution of the EU Health Strategy "Together for Health" (10).

The objectives of PHP 2008-2013 were directed towards improving the health information and knowledge of EU citizens. This is done so as to increase the competences of how individuals respond to health threats or how they consider various determinants to stimulate better health or obviate disease (Chafea, n.d). Against this background, the PHP 2008-2013 was also aligned with the Health Strategy 'Together for Health'. The first principle of shared health values emphasizes overarching values of solidarity, universality, access to good quality care and equity (6). For this paper, it is interesting to see how the funded projects of the PHP explicitly dealt with these ethical values and whether they used them as a foundation for setting their public health priorities. It is important to note that exploring the scope and the role of values in public health actions and strategies relates to the discipline of ethics. Thus, this paper explores whether ethical values, principles and aspects have been explicitly considered in the Second PHP objectives, proposals and its finalized projects.

Theoretical framework

In order to investigate whether ethical aspects or concerns were considered in the PHP objectives, projects funded by DG SANTE, a selection and combination of ethical appropriate principles, safeguarding and incorporating relevant values and aspects of human rights retrieved from studies addressing various aspects of public health ethics are proposed. There are five principles for public health ethics which are also known as ethical principles, these are: *Health maximization, respect for human dignity, social justice, efficiency and proportionality* (11), the principle of *respect for autonomy* (1), and finally *equity* as a principle proposed by Tannahill are also combined (12). To formulate the framework for this study, these ethical principles will be combined with the shared health values of the EU health Strategy namely: 'universality', 'solidarity', 'accessibility for quality healthcare'.

Respect for autonomy is targeted at various aspects, such as the decision-making power of individuals in relation to their health or the general public health. Additionally, it focuses on individual autonomy relating to self-domination, privacy, personal choice and free will (1). *Respect for human dignity* compliments *respect for autonomy,* it guards the various interests of an individual and his or her absolute value so that an individual is referred to with respect

especially for his or her liberties, such as self-control (11). It further emphasizes that an individual's liberties should not be defiled unless it harmfully affects others (13).

Health maximization is applied in practices where the monetary values of various projects are considered so as to give priority to the most cost effective project but also making sure that the public takes full advantage of all health benefits. The principle s*ocial justice* guards against segregation and marginalization of vulnerable individuals. It ensures that individuals are treated fairly, particularly in matters of equity and maximization of health benefits, so as to minimize and avoid inequalities related to health care services. Due to the growing public health needs and the inadequate public health resources, the principle of *efficiency* is significant in public health ethics. It is viewed as a moral act that ensures benefits are maximized especially in the execution of public health strategies, done by promoting the dissemination of basic necessities in a resourceful way.

The *proportionality* principle advocates for benefits to be considered and assessed alongside the harmful properties, especially when debates on individual liberty versus public good arise (11). *Equity* seeks to ensure that, the less privileged are not secluded in key public health actions that are important to them. In response to this, interventions and strategies that analyze the unfair allocation of services across different populations are implemented to target those at risk in a way to find the influencing factors and decrease inequalities (12). From the health strategy, shared values, *Universality* value ensures that every EU citizen has equal access to use the available healthcare and services and that no one is denied care. The value *access to good quality care* guarantees that the available health care and services are of high quality and no EU patient is denied any high-quality care. *Equity* as a value ensures that every EU patient is entitled to receive health care and services irrespective of their ethnic, gender or social economic backgrounds and status. *Solidarity* ensures that all the financial arrangements made by the respective Member States will promote the accessibility of health care and services to all citizens (6).

Using this framework, this paper will explore whether ethical principles, values and the 2007 strategy's shared values were sufficiently addressed in objectives, proposals and finalized projects of the Second PHP.

Table 1. Overview of ethical principles and health strategy values
(source: references 11-13)

Ethical Aspect	Description
Health maximization	Complete utilization of health benefits
Respect for human dignity	No violation of individual liberties
Social justice	Promotes fairness and guards against discrimination
Efficiency	Promotes cost effectiveness, maximizing of benefits and limits wastefulness
Proportionality	Considers the benefits alongside harm
Respect of autonomy	Promotes individual's free will and privacy
Equity	Supporting the fair access with reference to the need but regardless of origin, sex, age, social or economic rank
Universality	No patient is denied access to health services and care
Accessibility to quality health care	Ensure accessibility of high quality health care for all
Solidarity	The financial organization of a Member States' health system so as to ensure health is accessible for all.

Methods

A qualitative study design was carried out to gain insights into the ethical concepts and determine whether they have a role in the funding allocation of PHPs and in the reported project results. The search items used, relate to the seven principles and basic terms of ethics: 'equity', 'autonomy', 'health maximization', 'respect', 'dignity', 'social justice', 'justice', 'efficiency', 'proportionality', 'ethics', 'moral', 'value', 'ethic', 'ethical framework'. Including the shared health values 'universality', 'solidarity', 'accessibility' and 'quality health care'. It is important to note that despite the fact that, a number of projects used 'equity' to imply the reduction of inequalities, the term 'inequalities' was still excluded used as a keyword.

All data was retrieved from the Consumers, Health and Food Executive Agency (Chafea). The proposals were available as summaries which included the following sections: - general objectives, strategic relevance and contribution to the public health program, methods, means and expected outcomes (Chafea, n.d). The research focused on the summaries of the fifty-five finalized project proposals at the data collection time and excluded projects that were still ongoing as well as projects at the reporting stage. The study included all the projects from all the three strands of the CHAFEA project database: health information, determinants/health promotion, and health threats/health security. For the analysis, the individual project aims, goals and principles were compared against the ethical framework principles and the shared health values so as to show the overlapping concepts and which ethical gaps still need to be addressed. Moreover, the identified ethical aspects are further scrutinized to ascertain whether they were only mentioned as keywords or whether they were expected outcomes of the analyzed project.

Methodological and theoretical limitations including other potential challenges

The results from this study will indicate whether ethical concepts and public health ethics are already a constituent part of public health projects particularly with regard to the Second EU Public Health Programme. However, since this is a qualitative research, the study may encounter some limitations. To ensure validity as proposed by Bowling the researcher intends to organize, clustering the retrieved data into relevant and respective ethical themes (14).

This study has looked into the PHP's, assessing whether ethical aspects were explicitly considered in its objectives and the summaries of the project proposals. The study recognizes that, by focusing on the only the explicit role of ethics in PHP through the eyes of only the seven principles and the shared health values, other ethical relations and aspects which are still vital in PHPs may have been excluded. In addition, not all projects that implicitly discussed aspects related to the principles and shared values were reported due to the act that, out 55 finalized projects, ethical principles and related concepts were identified both explicitly and implicitly in 27 projects. Since the researcher used the given description of the principles to decide which ethical aspects and values were related to each other, there may be some form of interpretation bias.

However, as discussed in the paper, it is inarguable that there are various definitions of ethics and ethical frameworks depending on different disciplines. This has led different ethical frameworks to be defined and applied to suit certain situations. The seven ethical principles proposed for the framework may therefore be exclusive in terms of excluding other significant values and concepts. Additionally, given different definitions, application and

descriptions of the principles, it is clear that some aspects may refer to various principles such as universality and accessibility to health care. The study recognizes that, by focusing on the explicit role of ethics in the PHP through the eyes of only the seven principles and the shared health values, other ethical relations and aspects which are still vital in PHPs may have been excluded.

The results focusing on the project proposals show minimal external validity as they only apply to the 55 finalized projects and may perhaps not be adequately generalized to a broader setting. However, regarding the results focusing on the objectives of the PHP, the representativeness of the findings cannot be questioned since the objectives apply to all the projects funded during the 2008-2013 PHP. Thus, it can be generalized to improve the projects that are yet to be finalized and even aid in the drafting of the objectives of future PHP's in the case of learning from best practices.

Since most of the projects and proposals from the second PHP 2008-2013 were still in the final phase during the data collection, only the projects that were finalized by June 2014 were included and the projects submitted at any later date were excluded. The full proposals for the projects were also confidential and thus could not be retrieved. Therefore, it may be likely that some ethical principles and values might have been considered elsewhere in the full proposals hence resulting in limitations on the findings of this study. However, the project summaries were inarguably sufficient to conduct this study as they included a detailed executive summary of the project objectives in relation to the PHP objectives.

Results

After examining the summaries of the 55 project proposals and the EU Public Health Programme objectives, the findings were as follows. Out of the seven ethical principles from the theoretical framework, only two principles were identified. Other terminologies used in the analysis included 'ethics' and 'values' which were identified in three projects and in one project respectively.

Since the second PHP was founded on values prioritized in the EU Health Strategy: Together for health, the keywords 'universality', 'access', 'quality health care' and 'solidarity' retrieved from the first principle of the health strategy were identified differently in nine projects. Eight projects identified aspects pertaining to accessibility to quality health care and solidarity was only discussed in one project. Additionally, out of the four shared health values, only 'equity', 'solidarity' and 'access to quality health care' was identified explicitly in the objectives of the PHP. The projects were analysed basing on the seven ethical principles, the four shared health values and the ethical concepts ethics, morals and values. The results will be analysed and presented in the following categories. The different research questions will be answered and discussed in their respective sub-sections below.

Table 2. Presentation of the findings

Categories used in analysis and how results are presented	The terminologies used	Those identified in project proposals and/or in PHP objectives
Ethical concepts in PHP objectives & project proposals	Morals, values, ethics,	Ethics, values,

Shared health values identified in PHP objectives and project proposals	Equity, accessibility to quality health care, universality and solidarity	Solidarity, universality and accessibility to quality health care
Ethical principles identified in PHP project proposals	Health maximization, equity, proportionality, respect for human dignity, autonomy, efficiency, social justice.	Efficiency and equity

Ethical concepts and shared health values in the PHP-2008-2013 objectives

Ethical concepts such as, 'ethics', 'morals' and 'values' were not identified in the PHP objectives. However, the shared health values equity, solidarity and access to quality health care were explicitly identified in the PHP objectives. From the general objectives of the PHP, the common goal evident is improving ways that will ensure and promote the health security of the EU citizens. This goal is in line with the shared health value of ensuring 'accessibility to quality health care'. Even though 'accessibility' is not explicitly mentioned in the PHP objectives, it is one of the main objectives of the PHP because through the PHP, the EU Commission seeks to improve the Member State's capacities of responding to all kinds of health threats and ensure that the health care services, treatment and medications, for example transplant organs, are of the highest quality.

The PHP 2008-2013 also aims to promote the health of the EU citizens while reducing health inequalities. Solidarity ensures that all Member States commit to working in unity while supporting each other for the growth and development of the entire EU. Moreover, with regards to the solidarity value, the PHP was envisioned to complement, offer assistance and add value to the Member State's policies by developing, distributing and sharing all information, evidence, best practices and expertise relating to health to all Member States. Since solidarity ensures that less capable countries are not left out in the development or growth, the PHP fully supports this value as it aims to see to it that prosperity in the European Union is increased, and as a counter effect public health is improved.

Table 3. Shared health values in the PHP-2008-2013 objectives
(source: adapted from reference no. 15)

Shared health values of the EU Health Strategy	**Description as given in chapter 4 of this paper**	**How the concept is used in the PHP objectives**
Equity	Reduces inequalities among the minorities	"promote health and reduce health inequalities"
Solidarity	Mutual support and commitment among the MS	- "it is intended to complement, support and add value to the policies of the Member States and contribute to increasing solidarity and prosperity in the European Union" - "generate and disseminate health information and

		knowledge, exchanging knowledge and best practice on health issues''
Access to quality health care	Safe and quality health care is made available to everybody	"promoting actions related to patient safety through high quality and safe healthcare, scientific advice and risk assessment, safety and quality of organs, substances of human origin and blood"

Ethical principles in the PHP 2008-2013 project proposals

From the 55 projects, only 6 projects explicitly discussed findings that related to equity, while efficiency was only identified in four projects.

- *Equity:* The project 'DAYSAFE- Improving patient safety of hospital care through day surgery', recognized existing challenges health systems face while trying to ensure fair access to high quality and safe health care. The project therefore proposes to offer applicable solutions and as a result increase patient satisfaction, safety, equity and quality of health care. According to the 'Chain of Trust' project, increasing the awareness and understanding of the available recommendations regarding the perceptions, challenges and advantages resulting from the use of tele-health, will equip all the key stakeholders with knowledge and information that will add value and further promote the provision of health care equitable to all patients in the EU. The 'HealthVent' project discusses equity under the strategic relevance and contribution to the public health programme section of their proposal. It emphasizes that, its objectives will be aligned with those of the PHP as it aims to tackle environmental health determinants specifically those related to the use of energy in homes, schools and various public buildings so as to prevent chronic diseases and further decrease inequalities in health. 'Crossing Bridges' builds on the execution of article no. 168 of the EC Treaty to ensure that the HiAP vision is accomplished for equity across the EU. Moreover, 'Crossing Bridges' expects that through the project results, the respective stakeholders will be encouraged to implement policies that will result in health equity. By developing a suitable surveillance and information system for health the 'EUMUSC.NET' project expects to increase and harmonise the quality of care to allow for equity in care for rheumatic illnesses and musculoskeletal disorders across the member states. Through the consideration of structural aspects of gender inequality and gender stereotypes that openly affect men and women's health, 'ENGENDER' project aims to ensure equity by creating an online inventory of good practice of policies and programmes that focus on promoting health.
- *Efficiency:* 'DAYSAFE' expects to improve the technical efficiency of health services by ensuring that the policy-makers are well-informed and recognize the factors limiting the performance of DS, such as operational issues and incompetently designed structures. 'HealthVent' project: through establishing a health-related ventilation guideline focussing on buildings such as schools, homes, offices and nursery buildings among others, 'HealthVent' expects that inhabitants will utilize energy in a more reasonable manner so as to have more energy efficient buildings. BORDERNET project aims to improve the prevention, testing and treatment of HIV/AIDS/STIS by reducing obstacles related to practice, policies and cooperation between border countries and among member states though a more transparent and sustainable network. This will further improve the effectiveness and efficiency capacity of organizations of various sectors responding to AIDS/STIS. 'ENGENDER' expects that increasing the awareness and creating a platform for all stakeholders to be well informed through the online inventory of best practices, will result in effective, efficient policies and programs that focus on achieving gender equity in health.

Table 4. Efficiency aspects identified in project proposals

Project title	Aspects of efficiency/ efficient identified in the PHP project proposals
Improving patient safety of hospital care through day surgery (DAYSAFE).	"The project will enhance DS which represents a crucial strategic approach toward the improvement of health services safety and quality, including patient's satisfaction, together with technical efficiency and, possibly, equity"
Health-Based Ventilation Guidelines for Europe (HealthVent)	The (guidelines) "will reconcile health and energy impacts by protecting people staying in these buildings against risk factors, and at the same time taking into account the need for using energy rationally and the need for more energy efficient buildings"
Highly active prevention: scale up HIV/AIDS/STI prevention, diagnostic and therapy across sectors and borders in CEE and SEE (BORDERNETwork)	"The improved effectiveness and efficiency on regional and cross-border level in interdisciplinary response to AIDS/STIs and scale up of HIV/STI-testing will put forward the practical implementation of HIV combination prevention"
Inventory of good practices in Europe for promoting gender equity in health (ENGENDER)	"Increased awareness and knowledge for all stakeholders including: policy makers, politicians, researchers, NGOs and citizens, within and outside the health sector about effective, efficient policies and programmes to achieve gender equity in health"

Shared values of the 2007 EU Health Strategy in the PHP 2008-2013 project proposals?

Out of the four shared health values, only accessibility to quality health care and equity were addressed in the summaries of the project proposals. Basing on the description given for universality, the value was in a way linked to the context used to describe accessibility. From this assessment, more principles are seen to be used in association such as, 'accessibility and universality', 'universality and equity'.

- *Accessibility to quality health care:* Accessibility was analyzed in the projects in two parts: first, those projects that promote high quality health care services and secondly, those that ensure high quality of health care are accessible to all. 'COORENOR', 'DAYSAFE' and 'IMPLEMENT' projects discuss 'high quality of health care' by stating that quality assurance models are present in their projects and will ensure safe and high quality of services across the EU. 'Imp.Ac. T' and 'PROMOVOX' projects promote actions that particularly focus on marginalized groups and migrants. 'Imp.Ac. T' aims to ensure that access to HIV/TB testing for marginalized groups is improved, and 'PROMOVOX' emphasizes the facilitation of better access of immunizations among the migrant population. 'CARE-NMD' relates accessibility of healthcare to reduced inequalities. The project believes that, by improving the access

to expert care, there will be a reduction of inequalities among member states and within a Member State.

Table 5. Accessibility to quality health care as identified in the summaries of the project-proposals

Project title	Accessibility to quality health care value as used in the PHP project proposals
Coordinating a European initiative among national organizations for organ transplantation (COORENOR)	"All requirements for ensure recipient safety and high quality of the treatment as well as running models for quality assurance will be considered and transferred to the EU institutions
Improving patient safety of hospital care through day surgery (DAYSAFE)	"The general objective of the project is to improve patient safety & quality of hospital care through the promotion of DS best practice and standards.
Implementing Strategic Bundles for Infection Prevention and Management (IMPLEMENT)	"Aims to improve patient safety through high quality and safe healthcare".
Highly active prevention: scale up HIV/AIDS/STI prevention, diagnostic and therapy across sectors and borders in CEE and SEE. (BORDERNETwork)	"BORDERNETwork' focuses both disease causes and underlying social determinants of health, aiming to improve responses to prevention offers and accessibility of care services".
Improving access to HIV/TB testing for marginalized groups (Imp.Ac.T)	a) "Improving Access to HIV/TB Testing for marginalized groups b) "to increase the percentage of IDUs and migrants having access to HIV and TB testing"
Promote Vaccinations among Migrant Populations in Europe (PROMOVAX)	"Improve migrants understanding & acceptance of immunizations and facilitate their access to immunizations by identifying a network of relevant sites".
Dissemination and Implementation of the Standards of Care for Duchenne Muscular Dystrophy in Europe (including Eastern countries) (CARE-NMD)	"Improved access to specialist care for DMD and reduction of inequalities between countries & within countries due to better trained health professionals"

Ethical concepts or aspects in the PHP 2008-2013

- *Ethics:* Under the strategic relevance and contribution to the PHP section, 'Chain of Trust' acknowledges that the consideration of ethical associated issues while developing recommendations related to the approval of telemedicine by patients and health professionals is important especially during the implementation of telemedicine.
  'APYN' will assist in realizing the Work Plan priority 3.3.4 for preventing addiction and further contribute to the Alcohol strategy. The project proposes to consider "ethically sound actions" which, according to the priority areas for 2008 as stated in the 2008 work plan, refers to the ethical aspects outlined in the Charter of Fundamental Rights of the European Union. "Ethical considerations: Any proposal, which contravenes fundamental ethical principles particularly those set out in the Charter of fundamental Rights of the European Union may be excluded from the evaluation and selection process" (16).
  APYN' and 'Healthy Eco Life' will support the work plan actions through the "Involvement of new (non-traditional) actors for health in sustained, co-operative and ethically sound actions, both at regional or local level and across participating countries" (Chafea, n.d).
- *Values:* 'ACTIVE' intends to introduce a new method that will engage children between 5-8 years of age in Europe. It is evident from their title that the project aims to teach and inspire the children with values and views concerning healthy eating and physical activity- 'Animation for Children to Teach and Influence Values and Views on healthy Eating and physical activity (ACTIVE)'. However, the project only mentions the term 'values' in its title.

Discussion

These ethical principles ensure that the individuals or professionals governed by them align their actions and conduct with the principles in order to uphold the society's trust. Most of the ethical principles used in public health actions and research assist in making sure that researchers and public health professionals are held responsible by society. Moreover, ethical principles enable researchers to develop trust with the society, which often may cause them to receive funding or financial support for their research from the public because of their reliable and excellent work. Furthermore, upholding ethical principles in research will stimulate the consideration of significant moral and social values (9). Therefore, it is important for public health professionals and all stakeholders to abide by ethical principles in their duties. Additionally, ethical consideration is not limited to public health professionals only at a European level, it is also relevant for public health research and projects of the EU's Public Health Programmes.

With the PHP 2008-2013 being aligned with the Health strategy 'Together for Health', which was explicitly value based in setting priorities, ethics still plays a significant role in the explicit project proposals; yet, this role is not evident in all the PHPs. However, it is surprising to see that less than half of the projects considered the principle equity which is regarded as a public health and an EU strategy priority.

It is clear from the projects, that the mention of equity in their objectives and expected outcomes is not a sufficient indication of ethical consideration, for example, by mentioning that project actions will promote the coordination of abilities from both Eastern and Western

Europe, COORENOR project justifies its role in reducing health inequalities. This is an example to show that the mere mention of ethical principle is not an indication for its consideration in the entire project implementation and therefore the project falls short of explicitly considering equity.

In spite of this, various projects still gave relevance to ethical principles and values as they exhaustively discussed in their project summaries matters that related to ethics. 'DAYSAFE' recognizes that challenges exist which cause inaccessibility to quality and safe health care, hence they progress to propose methods that will promote equity in health.

In discussing 'efficiency', the four projects, 'BORDERNETwork', 'HealthVent', 'DAYSAFE' and 'ENGENDER',only discussed how their activities and methods will result in efficient services and materials. They however fail to show in their methods how this will be attained and only limit it to mention that providing of policy guidelines will promote efficiency. Regarding 'accessibility to quality health care', the projects questioned the quality and safety of health care services offered in Europe and offered to foster a high level of surveillance and monitoring to further ensure that the quality health care is accessible to all patients. They linked quality assurance strategies to high quality services.

Even though some projects did not explicitly mention 'accessibility', their objectives and method description matched the value 'universality' while also linking it to reduced inequalities, as they emphasized that no one particularly minorities such as, migrants, HIV/AIDS and TB patients, should be denied access to health care. Most of the projects had implicit discussions of how best practices should be shared across the EU and coordination among all different stakeholders should be supported in order to reduce inequalities in health instead of the explicit mention of solidarity.

Ex-post evaluation of the health programme

The aim of this evaluation was to assess the main results that were reached as well as recognize the key challenges and solutions especially after consideration of recommendations from preceding assessments. The post evaluation study was guided by four key themes that is programme management, dissemination methods, the effect of the health programme collaboration with other programmes and services. According to the assessment, the programme lacked proper management as monitoring data was not used, thus making follow-up a challenge. In order to increase the number of accepted and executed Health Programme funded actions, the main results of the health actions have to be made available to the relevant target groups. The 2nd Health Programme objectives were very broad, covering various significant needs of the Member States as well as those of the stakeholders. It was therefore recommended that the Health Programme ought to introduce more specific progress analysis as they have been defined in the 3rd Health Programme.

With regard to the 2nd Health Programme's objectives, the funded actions led to significant advancements such as, promoting cross-border partnerships. It is important to note that, the administrative duties of the programme were increasingly efficient. Moreover, the 2nd programme has shown major EU added value in recognizing best practices as well as networking (17). Even though, the objectives of the Health Programme are commendable as they seek good practices and also focus on national priorities while contributing to a healthy status for the European population, they are still very broad and only focus on the relevance of the action. Therefore, they may fail to explicitly address most of the ethical principles used in this study.

Since the study has examined only the explicit use of ethical principles and concepts in the project summaries and the PHP objectives, the ethical framework may therefore exclude implicit discussions of ethical principles and other significant ethical values especially those based on ethical definitions not considered in the descriptions provided for this study. Despite the fact that the ethical framework used for this assessment was based on seven principles, the study therefore doesn't provide a full picture of this ethical role in PHP but provides a new mentality and platform that will enable the explicit rethinking and reconsidering of ethics and ethical aspects in public health.

This new mentality and concern according to Callahan and Jennings will lead us to considering vital questions such as: - "What are the basic ethical issues of public health? What ethical orientations are most helpful in the clarification and resolution of these issues? How are ethical principles and concepts incorporated into decision making in public health agencies and programs? How adequately are ethical dimensions of public health policy identified and debated?" This is because as public health gains more prominence, the ethical aspects regarding health issues increase too (2).

Conclusions

This paper has presented and outlined ethical aspects that were explicitly identified in the 2008-2013 programme objectives and available project reports of the PHP. The projects were assessed, based on the theoretical framework consisting seven ethical principles. Furthermore, the four shared health values of the EU Health Strategy were considered as they were more general ethical concepts. From the analysis, the principle 'equity' was extensively discussed and considered by some of the projects, followed by the 'efficiency' principle and then the value 'accessibility to quality health care'. The study recognizes that by focusing on the role of ethics in PHP through the eyes of only the seven principles and the shared health values, other ethical relations and aspects which are still vital in PHPs may have been excluded.

Most commonly addressed values of the EU Health Strategy: 'Together for health' by the projects were, 'equity', 'accessibility' and 'universality' as it seemed expected from them since the PHP was based on values. It is encouraging to see that most of the shared health values were discussed in most of the projects. Even though vital principles such as- 'respect for human dignity', 'autonomy', and 'health maximization' were not addressed by any of the projects.

It is clear from the projects, that the mere mention of a principle briefly such as 'project will ensure equity' in the project objectives and expected outcomes is not enough to justify that the principle will be adequately considered or that the project understands or acknowledges the significance of ethics in public health today. The project needs to consistently consider ethical aspects in its entire proposal, in this case a project summary, and not just mention it, since it is required and expected to be included under the 'strategic relevance and contribution to public health programme' section.

This study has tried to paint a picture of the role of ethics in public health programmes. Even with its prominence, ethics in public health programmes and activities still needs to be encouraged. Moreover, more awareness in understanding ethics and ethical aspects in public health activities will further steer more ethical considerations not only amongst public health professionals and researchers, but also a more explicit and consistent consideration in PHPs and public health actions. In addition, basing on Gostin's work, ethical values ought to be

considered firstly by professionals in order to guide them in working for the common good of the society. Secondly, in public health in terms of how decision making influences the balance between individual and communal interests especially in the implementation of public policies. Thirdly, ethics for public health where the needs of the population are met in practical ways, such as more emphasis on training and research to improve ethical knowledge, as well as applications.

This study has therefore provided a new mentality and platform that will enable the explicit rethinking and reconsidering of ethics and ethical aspects in public health.

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ORIGINAL RESEARCH

Trajectories of life satisfaction during one-year period among university students: Relations with measures of achievement strategies and perception of criteria for adulthood

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Abstract

Aim: The aim of this study was to examine how university students' achievement strategies in an academic context and perceptions of criteria for adulthood relate to life satisfaction trajectories across one year.
Methods: A convenience sample of 143 young adults 18-28 years (mean age: 20.9±2.7 years; 109 females and 34 males) attending the University of Turin in northwest Italy completed questionnaires at three points with a six-month interval between each measurement. Latent Growth Curve Modelling and Latent Class Growth Analysis were used to assess longitudinal changes in life satisfaction and the related heterogeneity within the current sample.
Results: Three trajectories of life satisfaction emerged: high stable (37%), moderate decreasing (57%), and low stable (6%). At every time point high success expectations were related to a high stable life satisfaction trajectory. In turn, those adopting achievement avoidance strategies were more likely to have low-stable or moderately decreasing life satisfaction trajectories. The perception of the criteria deemed important to be defined as adults did not change across time points or across life satisfaction trajectories' groups.
Conclusion: These findings suggest that self-reported measures of achievement strategies among university students relate longitudinally to life satisfaction levels. Positive and optimistic dimensions of personal striving may be protective factors against the risk of decrease of life satisfaction among university students.

Keywords: achievement strategies, criteria for adulthood, developmental trajectories, life satisfaction, person-oriented approach.

Conflicts of interest: None.

Note of the author: Some results of the present paper have been previously presented at the 7th Conference of the Society for the Study of Emerging Adulthood in Miami, Florida, October 14-16, 2015.

Introduction

According to Diener, Emmons, Larsen, and Griffin (1) life satisfaction (LS) is defined as an individual's overall appraisals of the quality of his or her life. In the social and psychological sciences this construct has become a key variable for analyzing individuals overall subjective well-being (2). Longitudinal studies have shown that after adolescence the majority of people experience stability in LS over long periods of times (3). However, depending on the length of time, one may observe short-, intermediate- and long-term influences on LS (4). Indeed, in the field of life-span research, the development of LS over time has become a very important baseline through which more variegated trajectories of individual development are observed (5). Especially among older cohorts (i.e., aged 18 and above), given the relative stable differences in LS between observed latent growth groups in comparison with the more turbulent adolescence years, many have adopted a person-oriented approach (6,7) to describe which other characteristics unite individuals of a certain developmental trajectory of LS. For example, Ranta, Chow, and Salmela-Aro (8) have associated trajectories of LS among young adults to their self-perceived financial situation, concluding that positive LS trajectories relate to being in a positive self-perceived financial situation. Röcke and Lachman (3) observed how to maintain stable trajectories of positive LS individuals need intact social relations as well as a high sense of control. In addition, Salmela-Aro and Tuominen-Soini (9) and Salmela-Aro and Tynkkynen (7) found that education achievement during and after secondary education positively correlated with high stable LS.

Emerging adulthood research proposes that the growing acquisition of maturity regarding adulthood-related duties and roles such as the commitment to life-long relationships or the importance attributed to forming a family are parallel to a stable LS path (10). In general, in the age range 18-30 years, perceiving oneself as an adult correlates to higher levels of LS and positive affect (11). Such findings contributed to give credit to the theoretical assumption stating that among young adults the increasing acquisition of an adult identity and the endorsement of adulthood-related criteria are concurrent factors in determining positive outcomes at the individual level, as for example higher LS. At the same time, if we adopt a person-oriented approach to look at this issue, we might expect that others characteristics may define those young adults proceeding through transitions while exhibiting a mature adult identity and high LS. In an academic context, for example, the kinds of cognitive and attributional strategies individuals deploy provide a basis for their success in various situations (12), as well as for the positive development of their well-being (13). Accordingly, in the present study we aimed at integrating the research literature on the relationship between the attainment of adult maturity and well-being with indicators of individual achievement strategies typical of life-span studies. More specifically, through a longitudinal approach, we questioned whether university students' LS changes during a one year period and what kind of trajectories can be found. Secondly, we examined young adults' perception of the criteria deemed important for adulthood and achievement strategies in the academic context in relation to LS trajectories.

The Italian context

University students account for a good proportion of the population aged 18-30 years in Italy, although Italian national statistics show a steady decrease in the overall university enrolment rates (14). Moreover, Italy reports one of the highest rates of university withdrawals among OECD members (15), with some regional differences between north and south (with dropout rates being higher in the latter), but overall widespread across the country (16). Despite the considerable high social cost related to dropout rates during tertiary education and the interrelation between motivation, education attainment and well-being among young adults

(17), very few studies have examined from a longitudinal and psychological perspective how self-reported measures of well-being such as LS interact with motivational strategies in an academic context in Italy (18). Accordingly, the present study aimed to test the specific research hypothesis that positive motivational attitudes in an academic context relate to higher LS levels among young adults attending university and, possibly, to a higher acquisition of adulthood maturity.

Methods

Sample

The empirical data of the present study were collected through the submission at three time points of an online questionnaire to a convenience sample of university students in the north-western Italian city of Turin. Participants were reached in various university settings of the Faculty of Psychology, including libraries, canteens, cafeterias and public leisure spaces. The criteria to take part in the study were being enrolled as a full-time university student, being Italian and aged between 18 to 30 years. Students provided their email contacts if they were interested in taking part in the study. Then, they received a link to the online questionnaire through email. At Time 1, 645 individuals (76% females; mean age: 22.1 years) completed the questionnaire. At Time 2, six months afterwards, 252 individuals (79% females; mean age: 22.3 years) completed again the same questionnaire. Finally, at Time 3, twelve months after Time 1, 150 individuals (77% females; mean age: 22.1 years) filled in the questionnaire. The very high dropping rate from Time 1 to Time 2 and Time 3 can be explained by the total absence of an incentive for the participants to take part in the study (e.g., money, or school credits). Therefore, it is reasonable to imagine that only those personally interested in the topic or in the research itself were willing to fill in the questionnaire. In fact, while the dropping rate from Time 1 to Time 2 was equal to 61%, from Time 2 to Time 3 it was equal to 41% (of the total number of participants at Time 2), indicating a significant decline in the number of people dropping out. This may be explained by the fact that at Time 2 the proportion of participants interested in the research was higher than at Time 1. Moreover, only the participants who filled in the questionnaire at Time 2 were contacted again at Time 3.

Measures

- *Life satisfaction*

LS was measured using the Satisfaction with Life Scale (1). Participants rated five items (for example, “I am satisfied with my life”, and “The conditions of my life are excellent”) on a 7-point Likert-type scale ranging from 1 (totally disagree) to 7 (totally agree). A mean score was calculated for all items. Cronbach’s alphas ranged from 0.69 to 0.79 across the three measurement points, indicating a good level of internal consistency with respect to the LS variable.

- *Achievement strategies*

Four different types of achievement strategies in an academic context were assessed: success expectation, (Cronbach’s alphas ranged from 0.68 to 0.73), measuring the extent to which people expect success and are not anxious about the possibility of failure (4 items, e.g., “When I get ready to start a task, I am usually certain that I will succeed in it”); task-irrelevant behaviour (α from 0.76 to 0.82), measuring the extent to which people tend to behave in a social situation in ways which prevent rather than promote involvement (7 items, e.g., “What often occurs is that I find something else to do when I have a difficult task in front of me”); seeking social support (α from 0.73 to 0.77) measuring the extent to which

people tend to seek social support from other people (6 items, e.g., "It is not worth complaining to others about your worries"); and avoidance (α from 0.77 to 0.76), measuring the extent to which people have a tendency to avoid social situations and feel anxious and uncomfortable in them (6 items, e.g., "I often feel uncomfortable in a large group of people"). The scales belong to the Strategy and Attribution Questionnaire (19).

- *Criteria for adulthood*

Participants rated the importance of 36 criteria for adulthood (20) on their degree of importance on a scale of 1 (not at all important) through 4 (very important). Based on previous research (10,20), these criteria were grouped into six categories: *interdependence* (*α* from 0.60 to 0.65; 5 items; e.g., "Committed to long-term love relationship"), *role transitions* (*α* from 0.84 to 0.86; 6 items; e.g., "Have at least one child"), *norm compliance* (*α* from 0.77 to 0.82; 8 items; e.g., "Avoid becoming drunk"), *age/biological transitions* (*α* from 0.70 to 0.74; 4 items; e.g., "Grow to full height"), *legal transitions*(*α* from 0.81 to 0.86; 5 items; e.g., "Have obtained license and can drive an automobile") and *family capacities* (*α* from 0.75 to 0.77; 8 items; e.g., "Become capable of caring for children").

Analysis

The analyses followed three steps. First, to examine how LS changes during a one-year period, Latent Growth Curve Modelling (LGCM) (21) estimated the average initial level and slope of LS among the participants. The following indicators assessed the goodness-of-fit of the estimated LGCM: χ^2-test, the Comparative Fit Index (CFI) with a cut-off value of ≥ 0.95, and the Standardized Root Mean Square Residual (SRMR) with a cut-off value of ≤ 0.09. Subsequently, to evidence whether different types of LS trajectories emerge from the total sample, the analyses of this longitudinal data set extended into Latent Class Growth Analysis (LCGA) (22). LCGA examines unobserved heterogeneity in the development of an outcome over time, by identifying homogeneous subpopulations that differ with respect to their developmental trajectories within the larger heterogeneous population. LCGA is exploratory by nature, which means that there are no specific a priori assumptions regarding the exact number of latent classes. When testing LCGA models, different class solutions are specified. The best-fitting model is then selected based on the goodness-of-fit indices and theoretical considerations. Here, the following goodness-of-fit indices evaluated the models: Akaise's Information Criteria (AIC), Bayesian Information Criteria (BIC) and Adjusted Bayesian Information Criteria (aBic) of the alternative models. Entropy values were also examined, with values close to 1 indicating a clear classification. Following Marsh, Lüdtke, Trautwein, and Morin (18), groups of $\geq 5\%$ of the sample were considered the smallest to give an acceptable solution.

Practical usefulness, theoretical justification and interpretability of the latent group solutions were also taken into consideration (23). The analyses were controlled for age, gender and self-perceived socio-economic status (participants were asked how they would rate their actual socio-economical position on a scale from 1 – *not good at all* to 5 – *very good*).

Both LGCM and LCGA analyses were conducted with the Mplus 5.0 statistical software program.

At last, One-Way Analysis of Variance (ANOVA) examined if the LS trajectory groups differed in terms of their achievement strategies and importance attributed to criteria for adulthood. Post-hoc comparisons using the Games-Howell test examined differences between groups.

Results

Development of life satisfaction

The specified LGCM with a linear slope for LS change across the three time points fits the data well, χ^2=3.99(1), p<0.05; CFI=0.98; SRMR=0.04. In particular, while the intercept indicating the initial level of LS was statistically significant, the linear slope was not (Intercept M= 3.02, *SE*=0.05, p<0.001; Slope M = -0.11, *SE*=0.02, p>0.05). In addition, while the variance of the intercept was significant the variance of the slope was not (Intercept variance =0.15, p<0.001; Slope variance 0.01, p>0.05). Together these results indicate that first, on average, there was no significant longitudinal change in LS across the three measurement points, and second, that there was a significant individual variance in the initial levels but not in the rate of change. Thus, the significant heterogeneity among individuals was analyzed further adopting the person-oriented approach of Latent Class Growth Models. More specifically, these results suggest that, rather than investigating different rates of longitudinal change in LS within the overall sample, it would be more plausible to observe latent groups exhibiting stable trajectories of LS across time while being concurrently significantly different between each-other from baseline to the last follow-up.

Identifying life satisfaction trajectories

LCGA identified three sub-groups of individuals according to their levels of LS across measurement points. Table 1 shows the fit indices and class frequencies for different latent class growth solutions. The four-class solution was unacceptable given the presence of a group with zero individuals. The three-class solution was thus the most optimal given the numerical balance of the observed groups and its higher entropy value with respect to the two-class solution (i.e., values closed to zero are indicative of better fit). Figure 1 displays the estimated growth curves for the different latent trajectories of LS, whereas Table 1 reports LCGM results.

Figure 1. Life satisfaction trajectories *(mean values in a scale 1-7)*

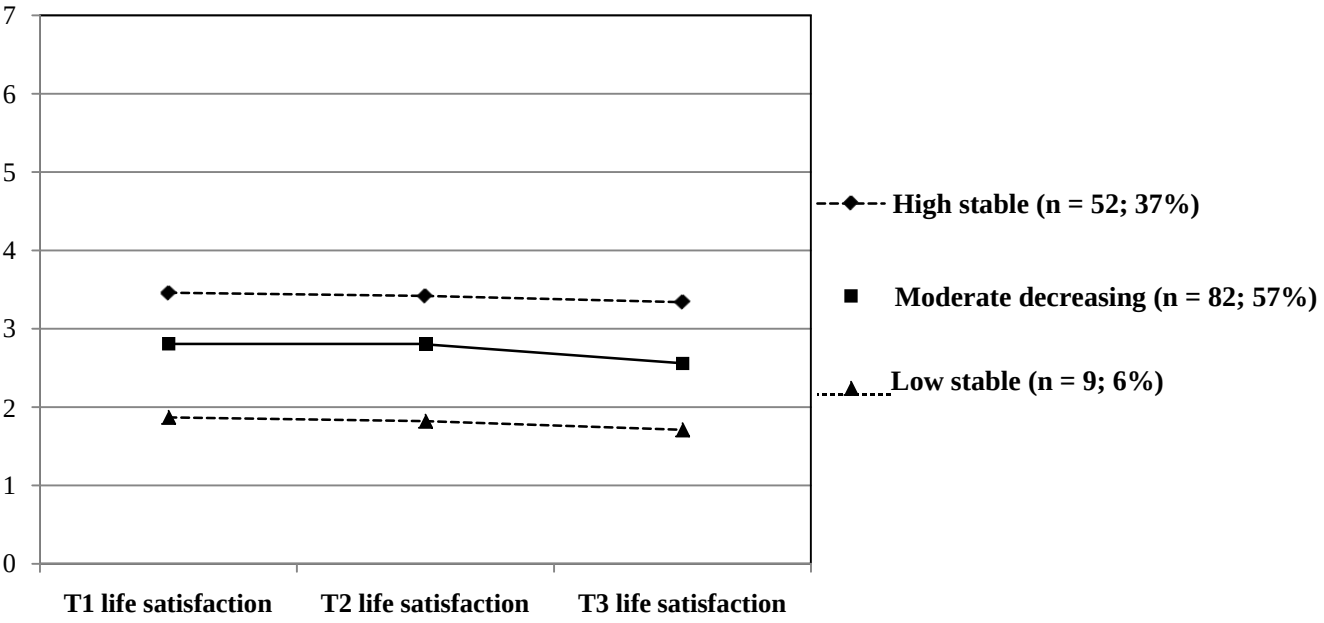

Table 1. Fit indices and class frequencies based on estimated posterior probabilities for latent class growth models of life satisfaction with different numbers of latent trajectory groups

Number of groups	BIC	aBIC	AIC	Entropy
1	766.94	751.12	752.13	-
2 (n_1 = 69%, n_2 = 31%)	684.93	659.62	661.23	.747
3 (n_1 = 37%, n_2 = 6%, n_3 = 57%)	**652.44**	**617.64**	**619.85**	**.827**
4 (n_1 = 6%, n_2 = 58%, n_3 = 0%, n_4 = 36%)	667.33	623.03	625.85	.863

Note. BIC = Bayesian Information Criteria; aBIC = Adjusted Bayesian Information Criteria; AIC = Akaike Information Criteria. The chosen option is marked in bold.

The latent trajectories of LS were labelled *high stable* (37%), *moderate decreasing* (57%), and *low stable* (6%). LS mean levels of the high and the low stable trajectory groups remained stable over time. On the other hand, the moderate decreasing group exhibited a significant decrease in LS mean levels over time (see Table 2). ANOVA and chi-square tests evidenced how the three sub-groups did not differ according to age, $F(2, 150)=0.01$, $p>0.05$, gender, X^2 (2, 150)=1.56, $p>0.05$, and self-perceived socio-economic position, X^2 (2, 150)=8.13, $p>0.05$.

Table 2. Estimation results of the final Growth Mixture Model with five latent classes *(unstandardized estimates; standard errors in parentheses)*

	High stable (n=52; 37%)	Moderate decreasing (n=82; 57%)	Low stable (n=9; 6%)
Mean structure			
Level	3.42 (0.05)**	2.83 (0.05)**	1.91 (0.11)**
Change	-.09 (0.06)	-.25 (0.05)**	-.14 (0.20)

Note. Variance is kept equal across the different latent groups.
** $p< .001$

Differences in achievement strategies and criteria for adulthood

The second analytical step consisted of testing whether the three observed LS trajectory groups were significantly different at each time point concerning self-reported achievement strategies outcomes in the academic context and the importance attributed to criteria for adulthood. Table 2 reports all effects and pairwise mean comparisons between LS groups. Since we did not observe any significant effect of LS trajectory group membership on the mean levels of the importance attributed to the criteria for adulthood, we decided not to report in a table such results for parsimony reasons. On the other hand, it appears clear how the three developmental trajectories groups consistently differed across time points regarding the types of achievement strategies they adopted in their academic activities. More specifically, from Time 1 to Time 3, the high stable group showed the highest levels of success expectation and the lowest levels of task irrelevant behaviour and avoidance. Diametrically opposite was the performance of individuals in the low stable group who consistently showed the lowest levels of success expectation and the highest levels of task irrelevant behaviour and avoidance. Finally, the moderate decreasing group reported a stable success expectation over time, but a slight increasing in avoidance. In fact, while at Time 1, the avoidance did not differ between the moderate and the high stable group, from Time 2 to Time 3, individuals in the moderate decreasing group showed the same level of avoidance as the individuals in the low stable group.

Table 3. Mean differences in achievement strategies between life satisfaction classes

	Moderate decreasing		High stable		Low stable		*F*	*p*	η^2
	M	*SD*	*M*	*SD*	*M*	*SD*			
T1 Achievement strategies									
Success expectation	2.38_a	.38	2.64_b	.37	1.93_c	.43	$F(2, 140) = 16.22$	.000	.19
Task irrelevant	2.20_a	.52	1.96_a	.59	2.47_b	.46	$F(2, 140) = 4.91$	.009	.07
Seeking social support	3.01_a	.49	3.00_a	.55	2.54_b	.32	$F(2, 140) = 3.64$	.029	.05
Avoidance	2.26_a	.54	2.11_a	.56	2.94_b	.62	$F(2, 140) = 8.79$	.000	.11
T2 Achievement strategies									
Success expectation	2.36_a	.35	2.56_b	.33	1.96_a	.47	$F(2, 140) = 12.87$	.000	.16
Task irrelevant	2.09_a	.43	1.82_b	.47	2.36_a	.40	$F(2, 140) = 8.64$	.000	.11
Seeking social support	3.11_a	.47	3.13_a	.47	2.44_b	.33	$F(2, 140) = 8.79$	.000	.11
Avoidance	2.22_a	.60	1.92_b	.49	2.87_a	.70	$F(2, 140) = 11.97$	.000	.15
T3 Achievement strategies									
Success expectation	2.40_a	.34	2.62_b	.35	1.94_c	.40	$F(2, 140) = 16.51$	.000	.19
Task irrelevant	2.02_a	.43	1.75_b	.47	2.44_a	.71	$F(2, 140) = 10.99$	.000	.14
Seeking social support	3.10_a	.51	3.14_a	.52	2.63_b	.33	$F(2, 140) = 4.02$	.020	.05
Avoidance	2.22_a	.59	1.88_b	.47	2.89_a	.85	$F(2, 140) = 14.28$	.000	.17

Note. Class means in a row with different subscripts are statistically different at the $p<0.05$ level according to the Games–Howell test.

Overall, these results indicate that the types of achievement strategies in the current sample are linked to different LS development trajectories. Furthermore, such measures of personal agency did not relate to different perceptions of the criteria deemed important for adulthood, nor the latter seem to correlate with LS developmental trajectories.

Discussion

The current research focused on a longitudinal convenience sample of young adults attending university in the north-western Italian city of Turin. The person-oriented model tested here provided theoretical evidence of the overtime interconnection between motivational strategies in an academic context and well-being among university students. The main contribution of the present study was the adoption of a person-oriented approach (6) to focus on the issue of the perception of adulthood among young adults. Indeed, to date, very few studies (24) have opted not to focus entirely on the relations between singular variables but instead to look at more elaborated systems of individual characteristics to draw a 'picture' of different 'types' of emerging adults in Western societies. Moreover, the longitudinal nature of the trajectory analysis contributed to test whether for emerging adults the perception of what it means to be considered adults nowadays is a stable construct over time, even if just across only one-year period. In particular, the latent curve growth analysis implemented here has represented a more fruitful way for examining young adults' individual development (22). Indeed, a single growth trajectory would have oversimplified the heterogeneity of the changes in emerging adults' life satisfaction over time, as some experience an increase and some a decrease in life satisfaction, although the majority seem to experience a significant stability (7). In this study, it was possible to identify meaningful latent classes of individuals according to the initial levels and the longitudinal changes in their life satisfaction across the three measurement points. Adopting this multiple trajectories approach resulted in a model of three developmental trajectories. Overall, two major conclusions can be drawn from the present study. First, starting from the non-significant findings, it appeared that the perception of the most important criteria for adulthood (i.e., family capacities, interdependence, norm compliance) are not correlated to life satisfaction trajectories, either low or high. Second, achievement strategies reflecting notions of agency were closely linked to life satisfaction, both about initial level and development. The first findings can reasonably be the result of the limited time span across which we aimed at observing developmental changes. Indeed, we already know that emerging adults are more prone to change their perception of adulthood especially in correspondence with crucial life events, such as getting married, experience of parenthood, finishing the studies and start working (10,11). Therefore, the impossibility to control for such events in the present study or simply the fact that the very small sample did not include a sufficient number of people going through specific transitions' thresholds, can explain why we did not observe significant differences across developmental groups who instead remained stable in their opinions over the curse of one year. However, we were not just interested in looking at changes, but we argued for stable differences across developmental trajectory groups. Again, despite the fact that we observed trajectory groups that showed significant differences in motivational strategies across time, these did not relate to adulthood self-perception. These results might confirm how the major sources of adulthood identity variation over time are significant experiences related to it.

The significant differences between groups in terms of achievement strategies suggest that these measures of motivation and life satisfaction are strictly related. Specifically, individuals with a high level of positive achievement approach strategies demonstrated high levels of life satisfaction. On the contrary, high levels of avoidance and irrelevant behaviours mostly

related to low levels of life satisfaction. A closer look revealed that individuals in the moderate decreasing life satisfaction trajectory maintained a more stable level of avoidance over time than the other two groups that both showed instead a decreasing in avoidance. Thus, personal strivings and strategies may be protective factors against a decrease in life satisfaction.

In summary, the findings from the current study are aligned with previous research work focusing on samples of young adults attending university and evidencing how individuals' achievement strategies measured during university studies affect subjective well-being outcomes (25,26), including life satisfaction (27,28). In particular, in accordance with our results, success expectations are positively associated with higher satisfaction (29) and poor engagement relate to low well-being (27). These evidences should guide future research with the aim of further investigating the role of different types of agentic personality traits among university students in relation to positive life outcomes and health behaviours as factors strongly related to subjective well-being outcomes.

Study limitations and conclusions

It is important to point out the main limitations of the current study. Firstly, owning to the person-oriented statistical approach and despite the study longitudinal design, the analyses did not explicitly report on any causal relationship between measures of achievement strategies and overall satisfaction with life. Future studies should look more specifically into cause-effect models using these types of self-reported measures of achievement strategies and various well-being outcomes. Secondly, the convenience sample of university students included in this study cannot be considered representative of the entire population of university students in the context of reference (i.e., the University of Turin in Italy). Accordingly, the generalizability of the current findings should be considered with caution while they may well represent a base to validate the theoretical framework according to which different motivational strategies among university students may positively or negatively influence well-being over time.

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REVIEW ARTICLE

Nurses' roles, knowledge and experience in national disaster preparedness and emergency response: A literature review

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Abstract

Aim: Nurses play a central role in disaster preparedness and management, as well as in emergency response, in many countries over the world. Care in a disaster environment is different from day-to-day nursing care and nurses have special needs during a disaster. However, disaster nursing education is seldom provided and a lack of curricula exists in many countries around the world. The aim of this literature review is to provide an overview of nurses‟ roles, knowledge and experience in national disaster preparedness and emergency response.
Methods: An electronic search was conducted using multiple literature databases. All items were included, regardless of the publication year. All abstracts were screened for relevance and a synthesis of evidence of relevant articles was undertaken. Relevant information was extracted, summarized and categorized. Out of 432 reviewed references, information of 68 articles was included in this review.
Results: The sub-themes of the first main theme (a) roles of nurses during emergency response include the expectations of the hospital and the public, general and special roles of nurses, assignments of medical tasks, special role during a pandemic influenza, role conflicts during a disaster, willingness to respond to a disaster. For (b) disaster preparedness knowledge of nurses, the corresponding sub-themes include the definition of a disaster, core competencies and curriculum, undergraduate nursing education and continuing education programs, disaster drills, training and exercises, preparedness. The sub-themes for the last theme (c) disaster experiences of nurses include the work environment, nursing care, feelings, stressors, willingness to respond as well as lessons learned and impacts.
Conclusion: There is consensus in the literature that nurses are key players in emergency response. However, no clear mandate for nurses exists concerning their tasks during a disaster. For a nurse, to be able to respond to a disaster, personal and professional preparedness, in terms of education and training, are central. The Framework of Disaster Nursing Competencies of the WHO and ICN, broken down into national core competencies, will serve as a sufficient complement to the knowledge and skills of nurses already acquired through basic nursing curricula. During and after a disaster, attention should be applied to the work environment, feelings and stressors of nurses, not only to raise the willingness to respond to a disaster. Where non-existent, national directives and concepts for disaster nursing should be developed and nurses should be aware of their duties. Nursing educators should prepare nurses for disasters, by adjusting the curricula and by meeting the increased need for education and training in disaster nursing for all groups of nurses. The appropriateness of theoretical and practical preparation of disaster nursing competencies in undergraduate nursing courses and continuing education programmes should be evaluated.

Keywords: disasters, disaster planning, emergencies, emergency preparedness, nurses.

Conflicts of interest: Thomas Grochtdreis is a member of the German Red Cross and vice president of the German Red Cross Youth. The other authors do not declare any conflicts of interest.

Introduction

Disasters are defined by the Centre for Research on the Epidemiology of Disasters (CRED) as "*a situation or event, which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering*" (1). Disasters are classified as natural, biological, geophysical, climatological, hydrological, meteorological, and technological (2).

Recent examples of major disasters are the earthquake in Haiti in 2010 as an example of a natural disaster and the earthquake followed by a tsunami and the nuclear catastrophe in Japan in 2011 as an example of a mixed natural and manmade disaster. Within the countries of Western Europe, more than five million people have been affected by a variety of disaster types (e.g., 4,295,600 people affected by storms, 684,492 by floods, and 816 by epidemics) in the last 20 years. Within this timeframe, 8,835 people were injured and 38,643 people were killed (3).

In order to master a huge number of affected people due to a disaster within a short period, it is important to have well trained first-response personnel or volunteers. Here, an essential role is allotted to nurses for integrating communicating efforts across these protagonists and for having role competencies in disaster preparation. It is quite probable that at some time in the future, nurses may be called upon to respond to a mass casualty event or disaster outside of the hospitals. Therefore, a need for nurses, who are well trained and prepared, arises on a national as well as on an international level (4).

Referring to the conditions in the USA, four strengths of nurses, which are key to a central role in disaster preparedness and management, as well as in emergency response, can be stated (5):

> *(i) Nurses are team players and work effectively in interdisciplinary teams needed in disaster situations; (ii) nurses have been advocates for primary, secondary, and tertiary prevention, which means that nurses can play key roles at the forefront in disaster prevention, preparedness, response, recovery, and evaluation; (iii) nurses historically integrate the psychological, social support, and family-oriented aspects of care with psychological needs of patients/clients; and (iv) nurses are available and practicing across the spectrum of health care delivery system settings and can be mobilized rapidly if necessary.*

However, approximately two out of five health care professionals would not respond during health emergencies. The nurseś intention to respond to disasters, the needs of nurses who respond to disasters and other health emergencies, and as well as the influence of the nursing shortage and the lack of education preparing nurses for disaster response are important issues which need to be approached (6).

Concerning the anticipated needs of nurses during a disaster, Giarratano, Orlando and Savage (7) report that during a disaster nurses have to live through the uncertainty of the situation and have to be prepared to adapt to the needs that arise in both patient care and self-preservation situations.

In order to prepare for emergency response, education within the field of disaster nursing is essential. Disaster nursing curricula and preparation of nursing faculty members are distinctly needed to teach disaster nursing in order to prepare nursing students for possible disaster situations adequately in future (6). Extensive work towards a comprehensive list of core competencies has been done by the WHO and ICN in their Framework of Disaster Nursing Competencies (8). Pang, Chan and Cheng (9) suggest that this framework should equip nurses with similar competencies from around the world while giving attention to local applications.

There is no comprehensive review covering all relevant fields of professional socialization: role, knowledge and experience. Recent reviews do concentrate on either the nurses‟ disaster preparedness, or the response of nurses working during a bioterrorism event (10). The aim of this literature review is to provide an overview of the nurses‟ role, knowledge and experience in national disaster preparedness and emergency response within the international scientific literature.

Methods

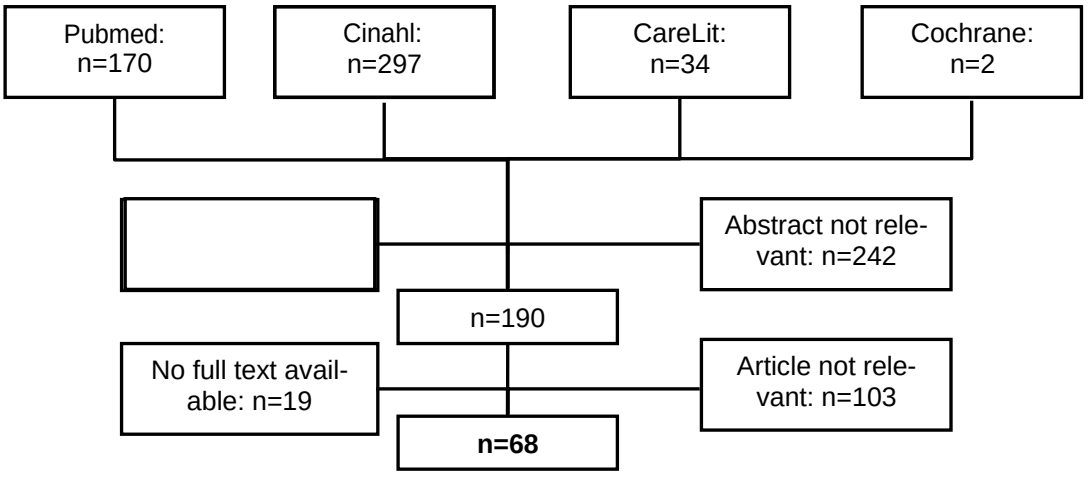
Search strategy

A database search was conducted during September-November 2012 using CINAHL (EBSCO), PubMed, Cochrane Library, and CareLit. A search strategy was used utilizing the terms „disaster‟ and „nursing‟ as keyword searches or subject headings, where applicable. All study designs as well as expert opinions were included in the review. Inclusion criteria were the existence of a relevant abstract on the role, knowledge and experience in the field of disaster nursing. All results, independent of their publication year and country of publication, written in English or German language, were included.

Selection criteria

In total, 503 articles were identified within the databases; out of these, 71 appeared in more than one database. The abstracts of all included literature (432 references) were scanned for their relevance on the topic. Articles were excluded if they definitely lacked relevance, meaning that the topic of disaster nursing did not appear at all (242 references). As a second step, the articles, which were deemed relevant (190 references), were evaluated in-depth by the first author by initial reading and appraising the relevance in relation to the aim of the literature review. Articles were excluded if they failed to address nurses‟ role, knowledge or experience in national disaster preparedness and emergency response in their full text (103 references) or if they were not available for evaluation (19 references) resulting in 68 included references. A flow chart of the selection process is presented in Figure 1.

Figure 1. Flow chart of the selection process



Data analysis

As articles differed in their (study) design, no meta-analysis was possible. Therefore, synthesis of the written evidence was undertaken. Categories for analysis, which were predefined through the aim of this literature review, included: (a) roles of nurses during emergency response, (b) disaster preparedness knowledge of nurses and (c) disaster experiences of nurses. For each category, sub-themes were determined out of the different focuses of the articles on disaster nursing (11). For each article, the narratives about a particular sub-theme were extracted. The narratives were paraphrased and generalized, where possible.

Results

In total, 68 relevant sources were identified from the literature search. The majority of the studies were descriptive (40%), or expert opinions/case reports (40%). Furthermore, 15% of the studies were qualitative and correlational studies, whereas 3% were systematic reviews.
The three categories, according to which the articles where analysed, represented also the most important themes: (a) roles of nurses during emergency response, (b) disaster preparedness knowledge of nurses and (c) disaster experiences of nurses. Most of the articles on disaster nursing were drafted in North America. In Europe, no articles concerning disaster experiences of nurses had been published. Below, each theme is divided into paragraphs, which are equivalent to the determined sub-themes.

Roles of nurses during emergency response

The six identified sub-themes include expectations of the public and the hospital, general and special roles of nurses, assignments of medical tasks, special role during a pandemic influenza and biological terrorism, role conflicts during a disaster and willingness to respond to a disaster.
Expectations of the public and the hospital: The public expects that nurses are prepared at a personal and professional level and that they have procedures in place, which enable them to

serve in an emergency (12). Reinforcing, the public has a right to expect effective response from healthcare professional, including nurses (13). Moreover, it is anticipated from the hospitals that nurses know before a disaster what will be expected from them in such a situation, what tasks will have to be fulfilled and who is authorized to issue directives towards them and many employees in hospitals do not know what their role during a disaster will be (14). In order to develop or to optimize the field of disaster nursing nationwide, it is proposed to develop a national committee to help define the discipline, build disaster curricula, and to set disaster competencies. Furthermore, nurses need to participate in disaster preparedness planning to become familiar with their responsibilities in disaster situations (15).

General and special roles of nurses: In general, nurses will have to provide care in a very different context than in their usual practice during disasters (16,17). Further, it is imperative that nurses are able to continue working to provide care to additional patients (18). Different authors acknowledge that nurses are key players in emergency response (15,17-22). In other words, it can be determined that nurses are in a natural position to assist in a disaster (23), they are the most vital resources in dealing with disasters (24), they have been part of disaster response as long as nurses have existed, nurses will continue to be key players (20) and when nurses are not involved yet in the aspects of disaster care, the involvement should become mandatory (25). Particularly, nurses working in disaster-prone areas need to know their professional role in a disaster (26).

Not every nurse is expected to fulfil any assigned role, and special roles before, during and after a disaster are assigned to nurses with different qualifications (Table 1).

Table 1. General and special roles of nurses

Groups of persons	Role description
Nurses meeting surge capacity needs (20)	Conducting surveillance in the field Dispensing mass medication or vaccination in shelters Staffing information hotlines in departments of health Admitting patients in hospitals
Nurses within hospitals (20,27)	Identify signs and symptoms of injuries and exposures Work in a disciplined team Follow clear lines of communication Perform according their assigned role directions and responsibilities
Nurses in general (28-30)	Establish disaster plans Train responders Coordinate the disaster response Provision of care for disaster victims Support and protect others from health hazards Make life-and-death decisions and decisions about prioritization
Nursing executives (31)	Preserve open lines of communication Ensure the quality of patient care, provide current education Influence policy and political decisions Provide security for staff, patients and families.
Public health nurses (20)	Screening Administer first aid and psychosocial support Implement infection control procedures and monitoring

Assignments of medical tasks: During a disaster, nurses are expected to be able to fulfil the role of a medical practitioner in some ways. This role can be described as outside of the normal scope of nursing practice, their knowledge or their abilities (32). Nevertheless, it is im-

perative that nurses are trained in disaster medicine in order to be assigned to medical tasks in emergency response (30). The task of triaging patients as an assigned medical task is figured prominently in the literature (19,29,32).

Special role during a pandemic influenza and biological terrorism: The tasks during epidemic situations are contact tracing, conducting case investigations, engaging in surveillance and reporting, collecting specimens, administering immunizations and educating the community (20). Furthermore, in hospital settings, it is expected from nurses to be able to identify, manage and treat infectious outbreaks (32).

Role conflicts during a disaster and willingness to respond to a disaster: Nurses might have conflicts between their professional, their private and their community role, respectively (33). Nurses might be therefore less willing to respond to work during a disaster. Other reasons influencing the willingness to respond are low baseline knowledge, low perception of personal safety, and low perception of clinical competence (34). It is also stated that these factors will lead to a shortage of nurses to provide care during a disaster. Nurses not responding to a disaster describe having feelings of guilt towards their jobs and co-workers, recognizing the impact of their decision. On the other hand, it is also possible that nurses maintain being able to respond to disasters beyond normal working hours (33).

Disaster preparedness and knowledge of nurses

The six identified sub-themes include definition of a disaster, core competencies and curriculum, undergraduate nursing education and continuing education programs, disaster drills, training and exercises, as well as preparedness.

Definition of a disaster: It is acknowledged that nurses might perceive a disaster differently than described from official definitions and classifications such as the one of the CRED (1,2). In a study by Fung et al. (29), nurses described their perception of a disaster in a fourfold manner. Most of the nurses attributed specific characteristics to disasters. Exemplarily, these characteristics are being unpredictable, sudden, unexpected or unpreventable, being out of control and not manageable, urgent response, horrible crisis or unknown disease with no treatment available. Another way of describing a disaster is by impact, as for example: large numbers of victims, damage to the environment, adverse psychological effects, loss of family, and serious consequences. Moreover, disasters were described as demanding emergency services and care. Examples are being in need for immediate medical attention, a challenge to professional services or requiring extensive work force to cope. Only few nurses described disasters in a way a definition would do: epidemics, accidents, terrorist attacks, natural disasters, extreme weather and war.

Core competencies and curriculum: For preparedness purposes, it is very important to have core competencies for education and training as well as for the effectiveness and efficiency of response during a disaster (35). The identification of core competencies and knowledge needed to help and protect self and others during a disaster is an important first step to qualify nurses for disaster response (20,35). Weiner (36) refers to the core competencies defined by the Nursing Education Preparedness Education Coalition (NEPEC) (Table 2). When comparing knowledge and experiences underpinning these competencies with nursing practice, it can be concluded that many of them are basic to a nursing curriculum (35). Furthermore, others claim that nurses already possess the skills enabling them to respond to a disaster. These are purported to be the values of human caring, creativity, the ability to improvise, communication and management skills (20,23). On the other hand, Usher and Mayner (22) state that working in an emergency department or a similar area is (still) not good enough to meet the

required competencies to respond to a disaster. Others claim that nurses working in acute care already have specific disaster nursing core competencies (28).

Some authors annotate that the area of disaster nursing is underrepresented or lacking in undergraduate nursing curricula, nurses and nurse practitioners are not able to meet required disaster nursing competencies and that it is urgent to include content in order to enable nurses to respond in times of disasters (6,12,15,17). Nursing educators are hold accountable to preparing nurses for disasters, for example by adjusting the curricula and by meeting the increased need for education and training in disaster nursing for all groups of nurses (6,17,37). Concerning a disaster curriculum, Lund et al. (30) propose seven modules for a comprehensive nursing curriculum to address chemical and biological warfare (Table 2). Elsewhere, such a training of specialized skills and knowledge is criticized because they are unlikely to be retained until an opportunity to use them is afforded (38). Others propose educational components that are more medically oriented (Table 2) (14,24).

Undergraduate nursing education and continuing education programs: The fields of undergraduate education and continuing education programmes for nurses are widely discussed in the literature. Because nurses have to be aware of disasters and be prepared for them, it is imperative that disaster management and nursing contents and experience are integrated into undergraduate nursing and continuing education programme curricula (15,17,22,24,35,39-41). It has to be acknowledged that all nurses, irrespective of being educated and trained or not, may be called during a disaster and therefore, all nurses must have a minimal knowledge and skills for appropriateness of their response (17,26,29,35). Education is critical to the feeling of safety and competence as well as the willingness to participate in an emergency (32,34), but it needs to be tailored according to the specific needs of the location such as capacity and expected role of nurses (16). For Australia, Usher and Mayner (22) state that the theoretical and practical preparation of disaster nursing competencies in undergraduate nursing courses are inadequate or only little is known about the inclusion and that professional development opportunities are needed.

One possibility for an adequate provision of knowledge and skills required in a disaster could be the collaboration and sharing of knowledge between nursing schools and the military medical communities as well as other trained medical professionals, for example volunteers from the Red Cross or Red Crescent and other medical response teams (17). Another effective strategy might be the dissemination of information and educational materials related to disasters (18).

It is central that nurses receive education which is specific to their actual knowledge and skills in order to not duplicate efforts or miss important content because the more advanced nurses are, concerning both experience and knowledge, the more likely they are to implement advanced disaster nursing (15,32,35).

Disaster drills, training and exercises: Drills and training play also an important role for disaster preparedness. It is concluded, that intensive training and periodical drill programs simulating hospitals‟ emergency plans will improve capabilities of nurses for emergency response (15,20,21,31,42,43). All nurses are recommended to participate in periodic emergency response drills and disaster training, and nursing schools should collaborate with the local EMS to give their students a disaster field experience and to expedite teamwork between first responders and first receivers, because during a disaster an enormous pool of nurses will be needed (20,21,23,25,35).

Further reasons for participating in and specific issues for disaster training are described in Table 3. Others contrarily describe specific medical tasks and conclude that these tasks should be tailored to the nurses‟ background knowledge and clinical experience(13,16).

With any disaster training, a broad range of topics should be covered in order to prepare nurses to function in disasters due to any hazard and settings other than their work settings (41). Goodhue et al. (21) conclude that having disaster training, besides having a specified role in the workplace disaster plan, is the most easily modifiable variable with the most impact on increasing the likelihood of response in the event of a disaster.

Preparedness: Disaster preparedness of nurses is pivotal to the ability and capacity to respond as well as the delivery of effective disaster response (6,18,24,33). There are two ways of viewing preparedness, personal preparedness and professional preparedness. Special attention is given to bioterrorism preparedness, because being especially prepared for bioterrorism and thus infectious disease emergencies, has a positive impact on patients, families and the nurses themselves, for example by preventing a secondary spread (18,45). Furthermore, bioterrorism preparedness readies nurses for other disasters, because the skills and response actions are the same and misconceptions can be prevented (46). Due to this importance, bioterrorism preparedness should be part of continuing education and nursing school curricula (18,43). Other special fields where preparedness is necessary are described in Table 4.

Table 2. Core competencies and disaster curriculum

Description	Contents
Core competencies defined by the Nursing Emergency Preparedness Education Coalition (NEPEC) (36)	Protect self and others from harm Participate in a multidisciplinary, coordinated response Communicate in a professional manner Recognize disaster situations and potential for mass casualty events Seek additional information and resources needed to manage the event Recognize your roles and limitations in disaster response efforts Cope with challenges that occur in disaster situations Define terms relative to disaster management response Discuss ethical issues related to mass casualty events Describe community health issues related to mass casualty events
Already existing specific disaster nursing core competencies of nurses working in acute care (28,41)	Triage Securing of personnel, supplies and equipment Recordkeeping Patient transport Decontamination Patient management of specific illnesses and injuries Patient management of special needs population Evacuation Development of disaster plans Ethics Response to stress reactions
Disaster curriculum modules of Lund et al. (30)	Anatomy of a disaster Epidemiology of disaster Disaster planning Communications in disaster Introduction to disaster medicine Introduction to pathophysiology of disaster The disaster response
Nursing curriculum to address chemical and biological warfare (40)	Introduction to biological and chemical terrorism Surveillance systems for bioterrorism Identification of agencies Communication Response systems Biological and chemical agents of concern Mass immunization Decontamination and mass triage Therapy and pharmacology Psychosocial effects of terrorism Nursing leadership during emergencies
Medically oriented educational components (14,24)	First aid Basic life support Advanced cardiovascular life support Infection control Field triage Pre-hospital trauma life support Advanced trauma care nursing Post-traumatic psychological care Peri-trauma counselling

Table 3. Reasons for participating and specific issues for disaster training

Description	Contents
Reasons for participating in disaster training (10,13,15,18,21,24,26,27)	Test and maintain disaster preparedness Create awareness for disasters in general Create awareness for physical and mental limits Increase personal safety Increase confidence in disaster management Minimize emotional and psychological trauma
Specific issues for disaster training (38,43,44)	Triage Mass casualty management (Bio-) Terrorism preparedness Communications Command and control Interagency cooperation Waste management Decontamination Personal protection
Specific medical tasks (13,16)	Cardiopulmonary resuscitation Central venous catheter insertion Trauma care

Table 4. Personal and professional disaster preparedness

Description	Contents
Personal preparedness (15,18-20,27,47)	Go-pack containing essential personal supplies Preparing and protecting the family Personal plan for times of disaster Knowing employment contract statement about obligation to report to duty during a disaster
Professional preparedness (15,19,26,27,29,47)	Pre-registering in a disaster registry Developing and knowing disaster plans Assembling emergency supplies Studying evacuation or shelter options Ongoing training and drills Experience in disaster nursing
Special fields of disaster preparedness (33,34,40)	Bioterrorism Disasters involving special need populations Chemical or radiation disasters

According to Al Khalaileh et al. (15), Jordanian nurses consider themselves being weakly to moderately prepared for a disaster and think that additional training would be beneficial. The same issues are made out for Hong Kong nurses and the existence of a lack of understanding their preparedness needs with regard to disaster is concluded (24,29). Being prepared for a disaster as a nurse might maximise safe conditions, decrease vulnerability and minimise risk to individuals during a disaster (12).

Disaster experiences of nurses

The six identified sub-themes are work environment, nursing care, feelings, stressors, and willingness to respond to disasters and to treat patients as well as lessons learned and impacts.

Work environment: Nurses will experience challenging working conditions, an environment of fear and difficult infection control requirement conditions during a bioterrorist event (10). Nurses believe that during a disaster will be a chaotic clinical environment without a clear chain of command, with insufficient protective equipment and little freedom to leave (47). Manley et al. (38) assume, even if hospitals are well prepared, that during a disaster will be chaos, inadequate resources, deaths and injuries, confusion and contention over who is in command, lapses in security and breakdowns in communication. During a disaster, problems concerning organizational and social supports caused by challenges with care for children, elderly or pets during prolonged shifts and quarantine might also prevail (48).
Nursing care: Nursing care during a disaster is a special type of care because of the exceptional situation and the change of routine. During a disaster, care is provided by an interdependent team of nurses, clinicians and EMS professionals, each playing unique roles (41). Thus, nurses especially feel as advocates for their patients, especially those who are frightened or most vulnerable, and their merits of caring and unity are the most appreciated aspects of their rescue experience, reinforced through communal sprit with their colleagues and the feeling of being rewarded by the victims (7,27). Nurses are confronted with conflicts and ethical issues when working during a disaster. Because of increased staff requirement and the allocation of resources nurses come into conflict with the delivery of dependent care (27,48). Other challenges for nurses are the identification of unfamiliar infectious agents, long working hours, limited supplies, unfamiliar environments, provision of care to infected patients, or fear of infection (10). Chaffee (49) concludes that tasks like triage, quarantine and mandatory administration of medication might be ethically challenging during a disaster. If uncertainty of the conditions worsens, nurses might experience discouragement and fear (7).
Feelings: On the one hand, nurses feel guilty when taking leave, are concerned about causing pain and distress to their patients, are overwhelmed by the scale of the tragedy, feel disgusted or distressed at the nature of the injuries and the scale of the suffering or felt apprehensive about being able to cope. On the other hand, nurses also feel excited and challenged by what they have to do, or feel to be valued as much-needed colleague (50). Anger towards people in authority, because of the expectation to fulfil the duty to care, is another feeling described by nurses (7). Fear, anxiety, stress and confusion are perceived to be felt in the event of bioterrorism. Fears might arouse in consequence of the possibility of acquiring a lethal disease from exposure to an infectious agent, transmitting an infectious agent to other patients or the family, lack of knowledge about disease agents, isolation procedures, and access to content resources (47). Other feelings might be uncertainty, hopelessness, or abandonment related to the issue of chaos in general and evacuation in special (7).
Stressors: There is a widespread assumption that nurses "*by virtue of their training and personality traits are relatively impervious to the effects of distressing experiences*", such as disasters (50). Newer studies disqualify this assumption, because for example, the work of nurses can be compromised when a lack of adequate rest, poor nutrition, erratic eating patterns and insufficient fluid intake prevails (26). Other stressors might be information and work overload, crisis, confusion, uncertainty, chaos, disruption of services, casualties, or distractions with crowds and media, decline of infrastructure, limited medical supplies and loss of electricity and potable water (7,25,31,47,48). Moreover, poor knowledge and working skills, combined with a heavy workload and lack of equipment, leads to emotional distress during a disaster (25). A disaster can also lead to personal trauma because of the experienced loss of homes, workplaces, and close relationships as well as suffering or dying patients (7).
Willingness to respond to a disaster and to treat patients: Main issues related to a reduced willingness to treat patients during an epidemic include having a high level of concern about

an infection and lack of medical knowledge (46). During a disaster, nurses will have the same vulnerability to property damage, injury or displacement, will have fear and concern about own and family's safety and will, therefore, have to make a decision whether to report to work or to care for oneself, one's family, or personal property (49). Other reasons for unwillingness to respond to a disaster are responsibilities to children or elderly, a second job, transportation issues or obligations to care for a pet (49). Goodhue et al. (21) found out in their study that less than one third of paediatric nurse practitioners would definitely respond during a disaster. One result of the study of O'Boyle et al. (47) is that many nurses would leave hospitals or would not report for work when a bio-terroristic event occurred. Not all nurses will be willing to respond to chemical, biological or radiological disasters, because of personal risk and not all nurses will be able to respond because of the unavailability of personal protective equipment (33).

In order to raise the willingness to respond to a disaster, nurses need to be educated on what the hospital expects from them and what the implications of certain choices of not responding to work will be (49). Other factors might be: knowing that family members are safe and provided for, having a home disaster plan, having disaster training, having an assigned role in the workplace disaster plan and prior disaster experience (21).

Lessons learned and consequences: Based on experience, often lessons learned and consequences for the future are stated. Ammartyothin et al. (42) conclude that medical personnel, such as volunteers, should be incorporated into the organic medical staff during a disaster as well as that communication systems are important for disaster management and have to withstand the actual event and the unavoidable. As a health institution, it is important to find out about the nurses' determinants of reporting for work when a disaster strikes in order to be better prepared (46). During a disaster, it is imperative, that food, water and a place to sleep or a quiet area are available for continued functioning of nurses. In order to ensure an effective response, nurses need to build functional partnerships with physicians, to support one another and to express a sense of responsibility and empathy for colleagues and patients (7,25,39). For future disaster responses, the performance of nurses during a disaster needs to be evaluated and the most frequently used skills need to be identified for further training (13).

Discussion

Concerning the general role of nurses in disasters, different attributions are observed. On the one hand, there is international consensus that nurses are key players in emergency response is somehow contemporary. On the other hand, it does not seem finally clear which expectations are cherished towards nurses. Is it only the continuation of the provision of care in different circumstances or is the assumption of medical tasks, in fact? Of course, not every nurse needs to be able to fulfil every role, but medical tasks during a disaster might be mandatory to undertake. It does not become finally clear from the literature review which medical tasks most certainly are needed in general and particularly for specific disasters. Moreover, heterogeneity about the field of application of nurses exists in the literature. In some it is described, that nurses will work on-site of the disaster area in others nurses will be deployed in their own hospital or in a hospital in the proximity of the disaster area and yet in others nurses will work in the community. These heterogeneities surely are due to the different healthcare systems and professional qualifications in the different countries, a diversity that is remains unanswered in this review. However, it seems convincing that preparedness for a disaster as well as an effective response are expectations of the public towards nurses in all countries.

Special attention is given to the roles of nurses before and during a pandemic influenza and biological terrorism. Nurses have a share in the identification, management and treatment of

infectious outbreaks. Again, the specific tasks during such an event are dependent on the professional education of the nurses.

The professional roles during a disaster might be in conflict with the personal duties in the family and in the community. Such conflicts can undermine supply of work force during a disaster immensely.

The definition of disaster is perceived differently by nurses than from the officially used definitions. Officially used definitions mainly focus on the cause of a disaster. Thereby, the passage between a mass casualty event and a disaster is fluent. For nurses, a disaster is mainly considered through the impact it has for their daily work, the persons who they care for and their own life. Thus, the unpredictability and suddenness as well as the number of victims, their injuries and clinical picture play a greater role in the perceptions of nurses. Furthermore, terrorism does not explicitly appear in the disaster classification of the CRED; yet, nurses do think that terrorism might be a threat for their country (2).

In order to be prepared for a disaster, it is important to define core competencies applicable to the different professional qualifications of nurses. A comprehensive list might be the WHO and ICN in their Framework of Disaster Nursing Competencies (8). This supranational framework has to be broken down into national core competencies for nurses and a list of competencies for undergraduate and continuous nursing education, at the end, because it may very well be the case that some knowledge and skills acquired through basic nursing curricula already equip nurses for disaster response. On the other hand, some disaster nursing competencies might be highly specialized, and thus uncommon in practise as well as unlikely to be retained. Thereby, a careful choice between specialization and generalization of skills and knowledge for undergraduate and continuous nursing education should be made.

Both, undergraduate education and continuing education programmes have to raise awareness and preparedness for a disaster adequately. By tailoring education to the local needs, such as the likelihood of specific disasters or existing disaster plans, and the needs of the nurses, such as the requirements for general disaster management knowledge or specialized medical skills, all nurses should be able to respond to a disaster appropriately. It remains unclear which strategy for the education of nurses in disaster management is the most effective. The collaboration with medical communities and other medical response teams, as well as the dissemination of information materials on the topic seem to be promising, not only for education but also for drills and training. Emergency response drills and disaster training are important elements of individually and professionally preparing nurses for disaster and evaluating existing disaster plans. Again, emergency response drills and disaster training need to be tailored according to the local needs and the needs of the nurses, leading to an improvement of the nurses‟ willingness to respond to a disaster and the response as such.

Being prepared for a disaster as a nurse means being personally and professionally prepared. Nurses are considered to be personally prepared, when they are able to protect their family as well as when they know their obligation to report to duty during a disaster and have all their essential personal supplies standing by. Professional preparedness of nurses means the registration in a relevant disaster registry, knowing the disaster plans and being trained. Furthermore, special preparedness is needed for nurses‟ working areas with special needs populations and specific disaster types.

The work environment of a nurse during a disaster will likely be challenging and chaotic. Nurses need to know beforehand what they might expect; therefore, preparing them through education and training is essential. Furthermore, a need for a good disaster plan, where chains of command and effective alternatives in communication are described, arises considering the high possibility of an adverse work environment. For nurses, it has to be clear, that care dur-

ing a disaster differs from the routine work. Interdependence in a team will become even more important as well as advocacy for patients, the allocation of resources and ethically challenging decisions (for example, during triage).

During a disaster, negative feelings, such as guiltiness, disgust, anger or fear, are dominant in descriptions of nurses' experiences, besides positive feelings of excitement or being challenged. No information is given on the impacts of those feelings on working capacity and mental health. Nurses also experience specific stressors during a disaster, likely leading to emotional distress and possibly to personal trauma. These stressors can either have a personal character, such as uncertainty about the safety of the family or themselves, an organizational character, such as being cut-off from support sources, and an occupational character, such as hazards, lack of equipment or high workload.

The willingness to respond to a disaster is dependent on the level of concern, responsibilities and the medical knowledge of nurses. Concern may exist for example due to property damage or own and family's safety, responsibilities may be towards children, elderly or another employer. It is important that nurses are educated and trained on the expectations of the hospitals and that they have their own disaster plan.

Disaster experiences importantly should lead to impacts for the future, the so-called lessons learned. Often, these lessons learned refer to optimizing communication systems, nurses' determinants of reporting for work, controlling the hospital environment during a disaster and the knowledge and skills of nurses. Nurses themselves will acquire experience, and might rethink their commitment to nursing. In summary, it can be stated that, after a disaster is, with all probability, before a disaster and it is therefore inevitable to prepare anew.

Conclusions and implications

It seems self-evident that nurses are key players in emergency response. In order to prepare nurses for disasters, clear roles should be defined according to the professional education of the nurses, which should be communicated beforehand. These roles of nurses during a disaster should be realistic in relation to their skills and practical experiences. In order to raise the availability of nurses during a disaster, roles should be adjusted to each nurse's personal duties in the family and in the community, in the best case. Roles should also be tailored according to the characteristics of the different disaster types, with special attention to pandemic influenza and biological terrorism. In order to satisfy public expectations towards nurses, national directives and concepts for disaster nursing should be developed, where nonexistent, and nurses have to be called attention to their duties. Moreover, distinctions towards roles of physicians and nurses during a disaster are needed in order to define the medical tasks of nurses clearly, which have to be trained and performed during a disaster.

Existent definitions of disasters seem not to be appropriate for the working environment of nurses. Defining disasters out of the experience of nurses could help to give a better understanding for such a sweeping event. A definition from the perspective of a nurse could be an unpredictable, sudden event that is hardly but urgently manageable with serious consequences to the population and environment demanding an extensive need for professional health services personnel.

In order to develop national disaster nursing core competencies, the Framework of Disaster Nursing Competencies from the WHO and ICN (8) should be interpreted for the needs of each professional group of nurses. National disaster nursing core competencies then should be adjusted to the demands formulated in the undergraduate nursing curricula in order to meet the national criteria. Nurses should receive education and training tailored to the local needs and their actual competencies. Collaboration with relevant national institutions and organiza-

tions is indicated for making education and training in disaster nursing more efficient, precisely if nursing educators are not knowledgeable in the field of disaster nursing.
For personal and professional preparedness and in order to raise willingness to respond, nurses need to pack their essential personal supplies standing by for emergencies, need to know that their families are protected and need to be registered in a disaster registry as well as know their relevant disaster plan. A personal disaster plan will help to arrange personal matters when responding to a disaster.
In order to counteract the high possibility of challenging and chaotic working conditions during a disaster, nurses need to be prepared for many situations and hospitals need to develop or improve their disaster plans. It has to become a given for every nurse, that nursing care during a disaster will change from its routine way, including all consequences, such as the allocation of resources.
Not much is known about the feelings of nurses responding to a disaster and their resistance to stressors. In order to be able raise the willingness to work in a disaster, it is imperative that possible distressing situations during a disaster are identified and reduced, and nurses become prepared for coping. It is central to learn from a disaster experience and to prepare anew. Not only will the optimizing of processes during a disaster written down in a disaster plan have to be evaluated, but the performance of the nurses who were on duty and the reasons of the non-performance of the nurses who were not able or not willing to respond to the disaster, as well. An overview of the implications and the relevance to nursing practice, nursing education and research is presented in Table 5.

Table 5. Relevance to nursing practice, nursing education and research

Relevance to nursing practice:
All nurses, regardless of their professionalization, need to receive disaster preparedness education in their undergraduate and continuous nursing education, in order to have a great pool of nurses during a disaster.
All nurses should periodically take part in emergency response drills and disaster training in order to be prepared for disasters.
For being prepared for a disaster and willing to respond, nurses need to be personally and professionally prepared. A personal disaster plan will help to arrange personal matters.
Hospitals need to have a disaster plan, wherein chains of commands, alternative communications and task descriptions for groups of nurses during disasters are described.
During a disaster, the routine way of nursing care changes and nurses need to be prepared to make ethically challenging decisions.
Relevance to nursing education and research:
Nursing educators should prepare nurses for disasters, by adjusting the curricula and by meeting the increased need for education and training in disaster nursing for all groups of nurses.
Nursing research should find definitions of disasters appropriate for the working environment of nurses. Research should be done in order to review the appropriateness of theoretical and practical preparation of disaster nursing competencies in undergraduate nursing courses and continuing education programmes.
Disaster preparedness of nurses needs to be evaluated regularly in order to maximise safe conditions, decrease vulnerability and minimise risk to individuals during a disaster.
Distressing situations for nurses during a disaster should be identified and reduced, nurses should be prepared by equipping them with possible coping strategies through education and post-disaster psychosocial care should be ensured.

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REVIEW ARTICLE

The emerging public health legislation in Ukraine

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Abstract

As Ukraine has started the legal process for a public health legislation, this narrative review attempts to: i) characterize recent legal acts (which are current as well as drafts) and international standards in the sphere of public health; ii) analyze the definitions of public health legally relevant to Ukraine, in particular: public health and public health protection; iii) discuss related definitions relevant to the health sector; iv) characterize the main subjects tasked to protect public health; v) and clarify the necessary educational innovations, which are the basis in the preparation of human resources for an efficient implementation of the public health concept.

After referring to the current legislative process and a discussion of some of the concepts and terminologies available in the literature, the following understanding of the terminology is proposed here: i) 'Public Health' should be understood as mental and physical health of the population in a certain territory, determined by the best achievable demographic indicators, characterized by decreasing morbidity and mortality and increasing the potential to lead an active and long life; ii) the term 'Public Health Protection' (or, 'Protection of Public Health') should address a system of measures which are aimed at prevention and control of morbidity, optimization of demographic indicators, promoting a value-oriented state policy, securing biological and genetic safety and relying on joint societal efforts.

It is essential that the implementation of a public health law is underpinned by adapting the postgraduate educational system to the new challenges in Ukraine.

Keywords: health care, multiprofessionality, public health, public health protection, Ukraine.

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Introduction

Ukraine entered an active process to integrate public health into the national health system as part of the wide spectrum of transformations of all Ukrainian systems. The "embryo" of public health has a long national history. In the historical context, it is worth paying attention to the State Sanitary-Epidemiological Service, which was responsible for protection of public health and had two main functions, i.e. control of communicable diseases and environmental protection (monitoring the quality of water, air, soil and food) (1).

Scholars, who worked on various aspects of public health development in Ukraine include Y. Bazylevych, I. Gryga, N. Chala, V. Moskalenko, V. Lekhan, V. Rudiy and others. In particular I. Gryga researched the issue of public health funding in Ukraine and proved the idea of introducing official patient payments in Ukraine in order to avoid informal or quasi-official payments (2). The system of state bodies responsible for public health protection was the focus of interest of V. Lekhan and V. Rudiy (1).

This process started to actively develop when Ukraine signed the Association Agreement with the European Union in 2014 (3). The article 426 of Chapter 22 of the Association Agreement foresees that the Parties shall develop their cooperation in the field of public health, to raise the level of public health safety and protection of human health as a precondition for sustainable development and economic growth. A conceptual provision of the Association Agreement within its Chapter 22 is the "Health in All Policies" approach. Hence, public health and health care should be a starting point for the state authorities to develop policies benefitting their population, since human wellbeing constitutes the core of any health system. Correspondingly, the article 3 of the Constitution of Ukraine states that an individual, his or her life and health, honour and dignity, inviolability and security shall be recognized in Ukraine as the highest social value.

Value-oriented law-making foresees the satisfaction of universal human needs and interests and it creates a relevant social toolset to meet these objectives. In the philosophical-legal interpretation, a value means objects, phenomena, social processes and their features, which are treated by a human being as those, which satisfy his or her social needs, interests, desires and which he or she involves to one's sphere of life activity (4). Public Health is a collective good, which has an individual value effect – human health.

In this paper I try to elucidate some aspects of the formation and development of the public health concept as a national Ukrainian paradigm; to clarify the terminological framework as a basis for the creation of the forthcoming public health legislation; to define public health in the Ukrainian environment and characterize the main educational innovations to support the preparation of well-trained human resources.

In order to achieve these objectives the following is required: i) to characterize recent legal acts (which are current as well as drafts) and international standards in the sphere of public health; ii) to analyze the definitions of public health legally relevant to Ukraine, in particular: public health and public health protection; iii) to discuss related definitions relevant to the health sector; iv) to characterize the main subjects tasked to protect public health; v) and to clarify the necessary educational innovations, which are the basis in the preparation of human resources for an efficient implementation of the public health concept.

Recent legal initiatives in Ukraine

Currently, the establishment of an effective public health system is one of the priorities of the Ukrainian Ministry of Health (3). In a Strategic document of the World Health Organization (WHO) Regional Office for Europe, issued in 2012: "Health 2020: A European policy framework supporting action across government and society for health and well-being" (5), it

is noted that *"...all 53 Member States in the WHO European Region have agreed on a new common policy framework – Health 2020. Their shared goals are to "significantly improve the health and well-being of populations, reduce health inequalities, strengthen Public Health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality"*.

Recommendations of the Parliamentary hearings on the topic: "On Health Care Reform in Ukraine" of 21 April 2016 (6), which is currently the sole strategic document for the envisaged transformations of the health system, also encompasses the public health sector. The 'Recommendations' define the list of tasks of the state bodies with regard to public health, including:

- development and approval of the concept of the public health system reform;
- preparation of a draft-law on the public health system in Ukraine;

Hence, the government started coordinating a process aiming at the legal foundation of a national system of public health, which should include the following elements:

- a modern system of epidemiologic surveillance of communicable diseases;
- a modern system of epidemiologic surveillance of non-communicable diseases;
- creating a system of public health, which is based on the principle "Ukraine 80+".

For the first time the principle "Ukraine 80+" was mentioned in the agenda of the head of the Committee on Health of the Verkhovna Rada of Ukraine, namely professor O. Bogomolets ("Health care reform: 25 steps to happiness"). In order to implement this principle it was foreseen that there should be developed such a system of public health which would secure an increase in life expectancy of the Ukrainian people. However, this principle was not further legally established in order to be implemented, except for some initial measures of organizational character, in particular official meetings with the European Union representatives.

Subsequently, the "Concept of Public Health System Development in Ukraine" (7) *(hereinafter – the "Concept"*) and the draft "Law on Principles of State Policy of Health Care" (8) *(hereinafter the "draft Law")* have been issued. For the first time, the draft Concept foresees the definition of the term 'System of Public Health', which is a set of instruments, procedures and measures, which are implemented by state and non-state institutions in order to strengthen the health of the population, prevent disease, support an active aging, and promote a healthy lifestyle, as a joint effort of the whole society. The draft Law attempts to provide a legal definition of the public health notion as a set of activities aiming at the maintenance and strengthening of the health of the population and increasing life expectancy. The state agencies and the bodies of local self-government are responsible for the organization of these societal efforts.

Definitions of public health legally relevant to Ukraine

Since the legal framework for a system of public health is under consideration, the terminology and meaning of the central term 'Public Health' has to be thoroughly examined. There are many scientific and legal definitions of this term. Therefore, a comparative discussion has to be conducted with regard to terms and concepts relevant to the health system.

One of the oldest definitions has been formulated by Charles-Edward Winslow in 1920: *"Public Health refers to the science and art of preventing disease, prolonging life and promoting health through organized efforts and informed choices of society, organizations, public and private, communities and individuals"* (9). According to the WHO definition in 1978 (10): *"Public Health is the science and art of preventing disease, prolonging life and*

promoting mental and physical health and efficiency through organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in personal hygiene, the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of social machinery to ensure to every individual a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birthright of health and longevity". The dimension of health according to WHO refers to *"...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*. Also, this understanding of public health incorporates the interdisciplinary approaches of epidemiology, biostatistics, community health, behavioural health, health economics, health management, health policy, health insurance, mental health, and occupational health as important subfields.

However, probably, the most common definition has been coined by Donald Acheson in 1988 (11): *"Public Health is the science and art of preventing disease, prolonging life and promoting health through organised efforts of society"*. In contrast, in John Last's famous Dictionary of Public Health in 2006 (12), it reads as follows: *"The mission of Public Health is to protect, preserve and promote the health of the public. Public Health is the art and science of promoting and protecting good health, preventing disease, disability, and premature death, restoring health when it is impaired, and maximizing the quality of life when health cannot be restored. Public Health requires collective action by society; collaborative teamwork involving physicians, nurses, engineers, environmental scientists, health educators, social workers, nutritionists, administrators, and other specialized professional and technical workers; and an effective partnership with all levels of government"*.

Ukrainian laws in force do not foresee a legal definition of the term public health; the above mentioned draft legal acts do that for the first time. It is worth paying attention to the legislation of other countries, which have special laws with a relevant legal glossary. For instance, the article 3 of the 'Law of Georgia on Public Health' of 27 June 2007 (13) provides a definition of the term 'Protection of Public Health' as a set of measures aimed at improving the health of the population, prevention and monitoring of diseases. The article 1 of the 'Law on Public Health' of the Kyrgyz Republic of 25 June 2009 (14) defines 'public health' as the health of the population or certain groups and communities defined by a geographic, social or another characteristic, which is evaluated by demographic indicators, characteristics of physical development, morbidity and disability, whereas 'Public Health Protection' is defined as a system of measures, directed at the protection of public health, prevention of diseases, prolongation of life and strengthening of human health owing to organizational efforts of all parties, the population, public and private organizations, communities and individuals. These two examples demonstrate that the respective legislators have adapted elements from the aforementioned definitions which are deemed relevant in their national contexts.

Related definitions relevant to the health sector

However, terminological problems can easily occur importing and translating terms during the process of their adaptation to national legal systems. For example, in Chapter 22 of the Association Agreement (3), the term 'public health' is used solely to define the name of the chapter but in the text of the Agreement the term 'health care' is used, which has a different meaning underlining individual health rather than population health.

Taking into consideration the definitions of public health discussed so far, it is worthwhile to relate the term 'public health' to other terms in the field of health care and identify its place in the relevant system.

Especially relevant for the Ukrainian legislatory process is the understanding of public health as the health of the population impacted by activities which are not restricted to the public sector – a common misunderstanding of the terminology. Therefore, we propose to consider in addition the term "Public Health Protection" which denotes the set of activities to be performed - not only by the public services - in order to achieve the best possible public health (health of the population) as a vision and objective.

Also, Verweij and Dawson (15) for example argue that the term 'public health' combines two words, each of which can be ambiguous and that among the many definitions of public health, the word "public" has two general interpretations. In a straightforward interpretation, "public" is an aggregate concept and is equated with the "population". In this meaning, "public health" refers to the state of population's health in general or a certain population group. The second interpretation of "public" is in terms of "collective action", which has the goal to protect and promote a population's health alongside efforts to prevent diseases.

Although historically, the same term "public health" was used in both meanings to characterize the state of the population in general and to define joint measures, which have to be taken in order to protect and improve such health (16). In the Ukrainian context, it seems preferable to apply two different terms: "public health" – to define a state of health of the population and "public health protection (or: "protection of public health" – to describe collective measures. However, most scholars agree that the essence of public health is the prevention of diseases, in order to maintain and strengthen both individual and collective (population's) health (17).

With reference to the above considerations, in the Ukrainian legislatory process, the following understanding of the terminology should be adopted:

- Public health is understood as mental and physical health of the population in a certain territory, determined by the best achievable demographic indicators, characterized by decreasing morbidity and mortality and increasing the potential to lead an active and long life.
- Under the term 'public health protection' (or, 'protection of 'public health') we understand a system of measures, which are aimed at prevention and control of morbidity, optimization of demographic indicators, promoting a value-oriented state policy, securing biological and genetic safety and relying on joint societal efforts.

According to article 3 of the Law of Ukraine on: "Principles of Ukrainian Health Care Legislation" (18), medical care is the activity of the professionally trained medical workers, aimed at prophylaxis, diagnosis, treatment and rehabilitation pertinent to diseases, injuries, intoxications and pathological conditions, as well as pregnancy and childbirth. Consequently, the complexity of public health's legal nature is caused by its multidisciplinary character, which generates the following formula: "medical care" and "public health protection" are partially overlapping in the area of prophylaxis. At the same time, both terms are part of the umbrella term 'health care'. Hence, both terms are within the realm of 'health care'. The term 'medical care' by its content is narrower than 'public health protection', since providing equal access to effective and high quality medical care is only one of the functions of the protection of public health.

On this basis, the main functions of the protection of public health include:

- *Monitoring:* evaluation, analysis, and comparison of the state of health of the population in order to identify the existing problems and develop priorities.

- *Control:* provision of biological and genetic security, decreasing the morbidity level.
- *Prevention:* prophylaxis of diseases and formation of a healthy lifestyle of the population.
- *Strategy and coordination:* formation of the state and local policy on the basis of "Health in All Policies".
- *Communication:* interaction of different subjects in terms of implementing the values of public health protection into social and state life.
- *Medical:* securing equal access of the population in general and each person in particular to high-quality and effective medical services.
- *Integration:* consolidation of the national and international efforts aimed at the protection of public health.

Public health service

According to paragraph 1.2 of the Concept (7), the key central body of executive power, which is responsible for the management of public health system, is the Ministry of Health of Ukraine. The Department of Public Health as a structural subdivision is targeted at securing proper management of the public health system. In order to implement policy and provide services in the sphere of public health at the national level, on 31 May 2016, the government established a State Institution "Centre of Public Health of the Ministry of Public Health of Ukraine" *(hereinafter – the Centre)*. According to its charter, the Centre is a scientific and practical institution of medical profile, which fulfils the following functions: ensure the permanent strengthening of the population's health; carrying out social and hygienic monitoring of diseases; epidemiological supervision and biological security; conducting the group and population oriented prophylaxis of morbidity; combating epidemics; and execute the strategic management of all public health issues. At the regional level, it is foreseen to create Regional Centres of Public Health. At the level of districts and cities, the provision of public health services will be coordinated by a public health specialist (epidemiologist) of the Regional Centre who will be appointed to a certain territory. The Concept also envisages that family doctors, mid-level medical personnel and representatives of the civil society should be involved in public health services.

Preparing human resources for the implementation of the upcoming public health legislation

When creating a new structure no less important are the human resources, which will be the element of the system that takes responsibility to implement a state policy in the sphere of public health. An important step in area of education was made after the Resolution of The Cabinet of Ministers of Ukraine passed on 23 November 2016. According to this Resolution, a new specialty labelled "public health" was added to the list of fields of knowledge and specialties, according to which, persons who receive higher education, are trained. This step became a foundation for the implementation of bachelor and master programs on public health. Consequently, this new sector will promote the professionalization of the public health workforce. Currently, in Ukraine, Schools of Public Health are being actively established and these schools will be the major centres responsible for educating the new generation of public health professionals. On the one hand, according to the multidisciplinary character of public health, specialists can be trained after different undergraduate studies (bachelor programs) and, on the other hand, training of professionals is conducted with a focus on different competencies, which are necessary for the public health sphere (for instance, with a legal specialization).

One of the examples of innovations in the sphere of education includes the departments of medical law, which were established within medical schools. These departments are to provide advanced training for health care managers and physicians. Therefore, they should be involved in the training of public health professionals, especially for those who are going to specialise on legal issues of public health. In this respect, the example of the Department of Medical Law of the Danylo Halytskyi Lviv National Medical University is of interest, which became already an associated member of ASPHER (19). At this Department, a postgraduate course on medical law has been established targeting physicians, health care managers, and lawyers. In addition, this Department has implemented other innovative educational programs, among them for example "Leadership in the Sphere of Health Care, Human Rights and Public Health Law", focusing on an advanced training of health care managers and comprising 78 hours, including lectures, practical classes and individual work.

Conclusions

The legislative initiative to formulate a Public Health Law for Ukraine requires a careful analysis of the concepts and the term 'Public Health' and the pre-existing services and service providers in Ukraine. After referring to the current legislative process and a discussion of some of the concepts and terminologies available in the literature, the following understanding of the terminology is proposed here:

- 'Public Health' should be understood as mental and physical health of the population in a certain territory, determined by the best achievable demographic indicators, characterized by decreasing morbidity and mortality and increasing the potential to lead an active and long life.
- The term 'Public Health Protection' (or, 'Protection of Public Health') should address a system of measures which are aimed at prevention and control of morbidity, optimization of demographic indicators, promoting a value-oriented state policy, securing biological and genetic safety and relying on joint societal efforts.

It is essential that the implementation of a public health law is underpinned by adapting the postgraduate educational system to the new challenges in Ukraine.

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SHORT REPORT

Protecting the planet and sustainable development

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Abstract

The United Nations has made a commitment for sustainable development. An important component of this is a healthy environment. But what exactly is a healthy environment? Environmental health specialists typically focus on occupational exposures in workers; the field mainly addresses the abiotic (i.e. non-living) aspects of environments. Ecosystem health addresses biotic (i.e. living) aspects of environments. Merging these two realms is essential for sustainable development but will be challenging because the fields are so different. The United Nations, individual countries, and schools of public health could do much to help merge these realms by implementing environmental/ecosystem health into their missions and curriculums.

Keywords: ecosystem, healthy environment, planet, sustainable development.

Conflicts of interest: None.

Expanding the definition of environmental health

The definition of environmental health must be expanded. The twenty-first century presents many challenges to global health. A growing human population, estimated to reach approximately 9 billion by 2050 if estimated growth rates continue, will require food, water, and other natural resources to survive. Meeting humanity's demands for natural resources threatens the environment including worsening deforestation, land degradation and contamination, water contamination, diminishing biodiversity, and spreading vector-borne and other zoonotic diseases. A warming climate with extreme weather conditions including drought and floods threatens agriculture and food security, the foundation of civilization. In the midst of all of these developments, a healthy environment seems almost impossible. But, the need for a healthy environment is imperative for life to continue, and the need to educate the next generation on the importance of sustainable development in a habitable world is essential (1,2). The question is:*"what exactly is a healthy environment and how should it be defined?"*

The National Environmental Health Association (NEHA) defines environmental health as *"the science and practice of preventing human injury and illness and promoting well-being by identifying and evaluating environmental sources and hazardous agents and limiting exposures to hazardous physical, chemical, and biological agents in air, water, soil, food and other environmental media or settings that may adversely affect human health"*(3). This definition focuses primarily on the hazards that affect humans. From a One Health perspective, however, it leaves out animals and the environment, itself.

One Health is the concept that human, animal, and environmental health are linked, and because they are linked, complex subjects such as emerging diseases, food safety and security, antimicrobial resistance, and waterborne illnesses must be examined and addressed in an interdisciplinary, holistic way. The term is relatively new, but the concept is ancient. Nevertheless, environmental health has been difficult to integrate into One Health for a variety of reasons.

First, those who work on environmental health, such as occupational and environmental physicians, nurses, and environmental health specialists, focus their work primarily on abiotic (i.e. non-living) contaminants, pesticides, and toxic waste exposures in occupational settings that affect workers. While this is extremely important, it is not the only aspect of what constitutes a healthy environment.

Ecosystem health focuses on the biotic (i.e. living) components of an environment and their interactions. Many scientists and other professionals from a variety of academic disciplines work on ecosystem health such as wildlife veterinarians, biologists, geologists, ecologists, plant pathologists and others. They study the web of life, complex interactions between many interconnecting systems.

Man-made alterations to entire ecosystems have many consequences, both intentional and unintentional, potentially harming the health of current and future generations (4). Environmental/ecosystem health would address the inter-action between the biotic (i.e. living) and abiotic components of environments and ecosystems. Unchecked development, including the destruction of ecosystems for agricultural or other purposes, potentially jeopardizes the health of regions, including the health of animals and humans. The challenge is integrating both the environmental and ecosystem health realms into a unified field that incorporates the One Health paradigm. A new inclusive term should be developed to reflect the expanded mandate.

Efforts are underway to establish new integrated environmental/ecosystem health fields. One is called "planetary health" (5). Advocates for planetary health seek to educate a new cadre of individuals (6). The challenge with this strategy is that it focuses primarily on humans and the

environment, minimizing the importance of animal health and zoonotic diseases. Also, planetary health is a broad, general term; it's not entirely clear what exactly its practitioners would do, or who would hire them. One Health recognizes the vast breadth of knowledge and skills needed for human, animal, and environmental/ecosystem health and seeks to increase communication and collaboration between medical, veterinary medical, and public health professionals and scientists to achieve these goals.

A global international body and environmental protection

A global, coordinating international body must be in charge of environmental monitoring and protection. Currently, there is no United Nations Environmental Protection Organization, but there is an Environment Programme that was established in 1972 with the mission to promote wise use of the environment and assess global trends (7). For the fiscal year 2014-2015, its total planned budget, from voluntary contributions from member states, was approximately $619 million, which was a 134 percent increase from the previous fiscal year(8). To put this budget into perspective, the World Health Organization's budget for 2014-2015 was almost $4 billion (9) (WHO has an environmental health section that addresses sanitation and water and air pollution but not necessarily ecosystems). The 2014-2015 budget for the Food and Agriculture Organization (FAO) was approximately $2 billion (10). FAO focuses primarily on food safety and security. In contrast, the 2014-2015 budget for the World Organization for Animal Health (OIE) was €22 million (approximately $17.2 million in 2014 USD) (11,12). The OIE's mission is to ensure healthy food animals for food safety.

Vast disparities in international funding between human, animal, and environmental health makes implementing a global One Health strategy extremely difficult, if not impossible. If world leaders were serious about protecting the environment/ecosystems of the planet, they should consider establishing a World Environment/Ecosystem Protection Organization with a mandate to examine and address environmental/ecosystem alterations and their resulting outcomes; the organization should have a budget at least comparable to the FAO, and it should have enough power to influence nations to act in the best interest of humanity to ensure planetary habitability and survival.

Countries' commitments

Countries must make commitments to study and protect their environments/ecosystems. Analogous to the international level, many nations such as the U.S., allocate little for analyzing, managing, and protecting their environments/ecosystems. In the U.S., responsibilities for environmental/ecosystem health are split between government agencies, which can dilute the overall effectiveness of efforts. The U.S. Department of the Interior oversees the U.S. Fish and Wildlife Service, which has the responsibility to manage biological resources and enforce laws like the Marine Mammal Protection Act and the Endangered Species Act (13). In the fiscal year 2012, its budget was $1.48 billion, a two percent decrease from the previous year (14).

The Environmental Protection Agency (EPA), established in 1970 because of public concern about environmental pollution, conducts monitoring, standard-setting, research, and enforcement activities to protect the public from environmental contaminants, toxic wastes, and other health hazards (15). In the fiscal year 2015, its budget was $7.89 billion, a 4 percent decrease from the fiscal year 2014 (16). President Donald Trump has vowed to eviscerate, and possibly eliminate, the EPA (17).

The US Geological Survey, under the aegis of the Department of the Interior, was created in 1879 to provide scientific information to understand the Earth and to manage the nation's water, biological, energy, and mineral resources in order to protect life (18). The USGS

monitors, collects, and analyzes data concerning natural resources. They provide scientific information to policy makers, planners, and others (18). In the fiscal year 2012, the U.S. Fish and Wildlife Service's budget was approximately $ 1.48 billion, an approximate 2 percent decrease from the previous year (19). These entities do work together, but funding is tight, and efforts might not necessarily be coordinated. The Trump Administration and the Republican-controlled Congress threaten to undo many of the conservation and environmental/ecosystem protection efforts over the past sixty years (20).

The role of Schools of Public Health

Schools of Public Health should offer interdisciplinary courses in conjunction with Geological Sciences and Agriculture and Forestry on environmental and ecosystem health, sustainable agriculture and biodiversity, food safety and security, water management and others. Schools of public health traditionally teach subjects such as biostatistics, epidemiology, health policy and management, socio-medical sciences, population and family health, and environmental health. Environmental health concentrates primarily on reducing carcinogens, toxic waste exposures, and other harmful chemicals.

However, the health threats we face in the 21st century extend well beyond traditional public health subject areas. Massive waste production from megacities and large animal production facilities threatens water and land quality as run-off from sludge seeps into soils and groundwater. Sanitation and hygiene will become one of the most important fields of public health, particularly in an era of worsening antimicrobial resistance. Preventing disease by lowering microbial burdens must be a global priority. Contaminated land and water contributes to food and water-borne illnesses. Severe droughts, floods, and unpredictable weather threaten food security as well as food safety. Arthropod-borne diseases are spreading, and will continue to do so with on-going deforestation, upending delicate ecosystems.

The curricula of schools of public health need to change to meet the challenges of the 21st century. Much more emphasis should be given to emerging zoonotic diseases, entomology, parasitology, virology, and bacteriology. Food safety and security should to be taught along with sanitation and hygiene, environmental and ecosystem health, climate and health. One Health policy should be taught to examine the intersection between public health, agriculture, and environmental/ecosystem health.

The importance of agriculture is rarely discussed outside of agriculture and animal husbandry courses. This must change. With worsening climate change, agriculture will be threatened in unprecedented ways. Food security and its impact on civil society will be an increasingly important subject in the decades ahead.

One Health education should be team-based (analogous to business schools) and should be focused on researching and analyzing national and international government infrastructures relevant to human, animal, and environmental health. Most health policy courses focus on healthcare delivery such as in hospitals and clinics. Health insurance coverage is another common area of study. But, policy education must be expanded to examine the larger issues such as biodefense, food safety and security, and disaster preparedness. The world needs creative thinkers and problem solves who can conduct fieldwork projects at local, regional, national, and international levels to improve global One Health.

Conclusion

In conclusion, environmental/ecosystem health must be better defined to meet the challenges of the 21st century. Expanding human populations, deforestation, land degradation, water contamination, massive human and animal manure production, crumbling sanitation

infrastructures, the growth of megacities, diminishing biodiversity, food safety and security, agriculture and animal husbandry, emerging zoonotic diseases are all tied together and adversely impact the world's environments/ecosystems, and ultimately, global health. These subjects must be examined and taught using an integrated One Health framework to adequately understand and address them.

United Nations member states have already made a commitment for sustainable development. At a United Nations Sustainable Development Summit meeting in September 2015, world leaders adopted 17 Sustainable Development Goals for the 2030 Agenda for Sustainable Development. World leaders recognize the importance of setting goals for leaving future generations a habitable planet. Expanding the definition of environmental health to include ecosystems and integrating it into a holistic, interdisciplinary One Health framework would be an important first step forward.

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SHORT REPORT

Socio-demographic factors and selected clinical characteristics of patients with retinal vein occlusions in transitional Albania

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Abstract

Aim: The aim of our study was to assess the distribution of socio-demographic factors and the clinical profile of individuals diagnosed with retinal vein occlusion (RVO) in Albania, a former communist country in South-eastern Europe which has been undergoing a rapid transition in the past decades.
Methods: This study was carried out in 2013-2016 at the Primary Health Care Centre No. 2 in Tirana municipality, which is the capital of Albania. During this timeframe, on the whole, 44 patients were diagnosed with RVO at this primary health care centre (17 women and 27 men; overall mean age: 69.5±11.5 years). The diagnosis of RVO was based on signs and symptoms indicating a quick reduction of the sight (vision), fundoscopy, fluorescein angiography and the optical coherence tomography. Data on socio-demographic factors and clinical characteristics were also gathered for each study participant.
Results: The prevalence of glaucoma was considerably higher in men than in women (67% vs. 24%, respectively, P=0.01). Diabetic retinopathy was somehow more prevalent in women than in men (18% vs. 11%, respectively), whereas an opposite finding was noted for the presence of hypertensive retinopathy (6% vs. 11%, respectively). The prevalence of cataract was higher in female patients compared with their male counterparts (18% vs. 7%, respectively, P=0.36). Both macular oedema and papillary oedema were almost equally distributed in men and in women (22% vs. 18% and 4% vs. 6%, respectively). All female patients had comorbid conditions compared to 85% of their male counterparts (P=0.15). The prevalence of hypertension was almost identical in both sexes (52% in men vs. 53% in women), whereas the prevalence of diabetes was somehow higher in men than in women (26% vs. 18%, respectively).
Conclusion: This is one of the very few studies informing about the distribution of socio-demographic factors and selected clinical characteristics of individuals diagnosed with RVO in transitional Albania.

Keywords: Albania, clinical profile, ophthalmology, retinal vein occlusion, socio-demographic factors.

Conflicts of interest: None.

Introduction

Retinal vein occlusion (RVO) is a major reason for severe ocular impairment and blindness (1,2). The available evidence, based on many studies carried out in different countries of the world, indicates that RVO is linked to an increased risk of cardiovascular disease, especially hypertension, diabetes mellitus, and coronary artery disease (3-5). The incidence and prevalence of RVO is substantially higher among older people, notwithstanding the fact that this condition is a frequent cause of painless visual loss also in middle-aged individuals (6-8). Data from the Global Burden of Disease (GBD) 2010 Study indicate that Albania is the only country in the South-eastern European region that has experienced an increase in the mortality rate from ischemic heart disease and cerebrovascular diseases in the past two decades (9), exhibiting an early evolutionary stage of the coronary epidemic, which was evident many decades ago in the Western countries (10). Indeed, ischemic heart disease and cerebrovascular disease were among the highest ranking causes regarding the number of years of life lost due to premature mortality in Albania in 2010 (9). Furthermore, the burden of diabetes mellitus has almost doubled in Albania in both sexes in the past two decades (10). In males, there was an increase of 96% in Disability-Adjusted Life Years (DALYs) from diabetes, whereas in females this increase was 85%. Overall, the sex-pooled proportional DALYs for diabetes in Albania in 2010 increased 50% compared with 1990 (9). Currently, there is evidence of a gradual increase in the diabetes burden which is also due to improvements in the accessibility of health care (that is adequate registration and management of all cases with diabetes) coupled with a steady increase in the ageing population (which, in turn, is associated with an increase in the prevalence of diabetes) (10). Yet, data on the prevalence and determinants of RVO in Albania are scarce. Indeed, to date, there are no scientific papers available providing evidence about the magnitude and occurrence of RVO in the population of Albania. In this context, the aim of our study was to assess the distribution of socio-demographic factors and the clinical profile of individuals diagnosed with RVO in Albania, a former communist country in South-eastern Europe which has been undergoing a rapid transition in the past decades.

Methods

A case-series study was carried out at the Primary Health Care Centre No. 2 in Tirana municipality during the time period 2013-2016. Overall, the number of patients diagnosed with RVO in this health centre during the study period was 44. Of these, 27 (61%) patients were males and 17 (39%) were females. On the whole, mean age of the patients was 69.5±11.5 years (with a range from 42 years to 93 years). Median age was 70.5 years (interquartile range: 60.3-77.8 years).

The diagnosis of RVO was based on the following criteria: i) signs and symptoms indicating a quick decrease and reduction of the unilateral sight; ii) fundoscopy, a conventional examination technique of the fundus employed at the primary health care services in Albania (a procedure which indicates the retinal veins that are dilated or tortuous, as well as the retinal haemorrhages); iii) fluorescein angiography, which was the main examination procedure in this study, and; iv) the optical coherence tomography (OCT).

Furthermore, information about selected clinical characteristics of each patient diagnosed with RVO was gathered. More specifically, the clinical information for all the patients diagnosed with RVO included the presence of glaucoma (yes vs. no), the type of glaucoma (open angle, closed angle, secondary, or absolute glaucoma), presence of diabetic

retinopathy, hypertensive retinopathy, cataract, macular oedema, papillary oedema, or comorbidity (all dichotomized into: yes vs. no), as well as the type of comorbidity (hypertension, diabetes, or both conditions).

Information on socio-demographic characteristics was also collected based on a structured interview. More specifically, for each patient it was gathered information on demographic factors (age and sex) and selected socio-economic characteristics [place of residence (dichotomized into: urban vs. rural areas) and employment status (trichotomized into: employed, unemployed, retired)].

The study was approved by the Faculty of Medicine in Tirana and all patients who agreed to participate in this study gave their informed consent.

Mean values and the respective standard deviations were calculated for the age of the overall sample of study participants, as well as separately in men and in women. Conversely, absolute numbers and their respective percentages were calculated for the other socio-demographic factors (place of residence and employment status) and all the clinical characteristics of the patients. Mann-Whitney U-test was used to compare the age between male and female patients diagnosed with RVO. On the other hand, Fisher's exact test was used to assess sex-differences in the distribution of the other socio-demographic factors (see Table 1) and all the clinical characteristics in the sample of patients included in this study (Table 2). A p-value of≤0.05 was considered as statistically significant in all ca ses. Statistical Package for Social Sciences (SPSS, version 17.0) was used for all the statistical analyses.

Results

The distribution of socio-demographic characteristics of the patients included in this study is presented in Table 1. Mean age in men was 71.1±10.9 years, whereas in women it was 67.0±12.4 years. Yet, there was no evidence of a significant sex-difference in the mean age of the patients included in this study (Mann-Whitney U-test: P=0.27). About 19% of male patients and 29% of females were residing in rural areas, without evidence of a sex-difference though (P=0.47). Similarly, there was no evidence of a statistically significant difference in the distribution of employment status between genders, regardless of a higher rate of unemployment in women compared to men (29% vs. 15%, respectively, P=0.51) [Table 1].

Table 1. Socio-demographic characteristics of a sample of patients diagnosed with RVO during 2013-2016 in Tirana, Albania

Variable	Men (N=27)	Women (N=17)	P*	Total (N=44)
Age (in years) [mean+SD]	71.1±10.9	67.0±12.4	0.272	69.5±11.5
Place of residence [N (column %)]				
Urban areas	22 (81.5)	12 (70.6)	0.473	34 (77.3)
Rural areas	5 (18.5)	5 (29.4)		10 (22.7)
Employment status [N (column %)]				
Employed	2 (7.4)	1 (5.9)		3 (6.8)
Unemployed	4 (14.8)	5 (29.4)	0.505	9 (20.5)
Retired	21 (77.8)	11 (64.7)		32 (72.7)

* Mann-Whitney U-test was used for the comparison of age between men and women, whereas Fisher's exact test was used to test sex-differences regarding the distribution of place of residence and employment status.

The distribution of selected clinical characteristics of the patients included in this study is presented in Table 2. The prevalence of glaucoma was considerably and significantly higher in men than in women (67% vs. 24%, respectively, P=0.01). Absolute glaucoma was found in 26% of men, but only in 6% of women, notwithstanding the lack of a statistically significant sex-difference in the distribution of glaucoma types (P=0.26), possibly due to the modest sample sizes. Diabetic retinopathy was somehow more prevalent in women than in men (18% vs. 11%, respectively), whereas an opposite finding was noted for the presence of hypertensive retinopathy (6% vs. 11%, respectively). Yet, none of these differences was statistically significant. The prevalence of cataract was higher in female patients compared with their male counterparts (18% vs. 7%, respectively), regardless of the lack of statistical significance (P=0.36). Both macular oedema and papillary oedema were almost equally distributed in men and in women (22% vs. 18% and 4% vs. 6%, respectively).

Table 2. Distribution of clinical characteristics in a sample of patients diagnosed with RVO during 2013-2016 in Tirana, Albania

Clinical characteristic	Men (N=27)	Women (N=17)	P†	Total (N=44)
No	9 (33.3)*	13 (76.5)	0.012	22 (50.0)
Yes	18 (66.7)	4 (23.5)		22 (50.0)
Glaucoma type:				
Open angle	5 (18.5)	5 (29.4)		10 (22.7)
Closed angle	4 (14.8)	5 (29.4)	0.261	9 (20.5)
Secondary	11 (40.7)	6 (35.3)		17 (38.6)
Absolute	7 (25.9)	1 (5.9)		8 (18.2)
Diabetic retinopathy:				
No	24 (88.9)	14 (82.4)	0.662	38 (86.4)
Yes	3 (11.1)	3 (17.6)		6 (13.6)
Hypertensive retinopathy:				
No	24 (88.9)	16 (94.1)	0.999	40 (90.9)
Yes	3 (11.1)	1 (5.9)		4 (9.1)
Cataract:				
No	25 (92.6)	14 (82.4)	0.359	39 (88.6)
Yes	2 (7.4)	3 (17.6)		5 (11.4)
Macular oedema:				
No	21 (77.8)	14 (82.4)	0.999	35 (79.5)
Yes	6 (22.2)	3 (17.6)		9 (20.5)
Papillary oedema:				
No	26 (96.3)	16 (94.1)	0.999	42 (95.5)
Yes	1 (3.7)	1 (5.9)		2 (4.5)
Comorbidity:				
No	4 (14.8)	0 (-)	0.147	4 (9.1)
Yes	23 (85.2)	17 (100.0)		40 (90.9)
Type of comorbidity:				
Hypertension	14 (51.9)	9 (52.9)		23 (52.3)
Diabetes	7 (25.9)	3 (17.6)		10 (22.7)
Both	6 (22.2)	5 (29.4)		11 (25.0)

[*] Absolute numbers and the respective column percentages (in parentheses).
[†] Fisher's exact test was employed to test sex-differences regarding the distribution of all clinical characteristics presented in the table.

All female patients had comorbid conditions compared to 85% of their male counterparts (P=0.15). The prevalence of hypertension was almost identical in both sexes (52% in men vs. 53% in women), whereas the prevalence of diabetes was somehow higher in men than in women (26% vs. 18%, respectively) [Table 2].

Discussion

This study provides evidence about the distribution of socio-demographic factors and the clinical profile of individuals diagnosed with RVO at primary health care services in Tirana, the capital and the largest city in post-communist Albania. Essentially, the main findings of this study consist of a higher prevalence of glaucoma, hypertensive retinopathy and diabetes in men than in women. On the other hand, women exhibited a higher prevalence of diabetic retinopathy, cataract and comorbid conditions. It should be noted that there are no previous studies describing the socio-demographic factors and clinical characteristics of Albanian patients with RVO.

The incidence and prevalence of RVO will increase steadily in Albania in line with the population aging. Thus, according to the last census conducted by the Albanian Institute of Statistics in 2011, the proportion of individuals aged 65 years and over increased to 11% (11). This gradual increase of the older population bears important implications for the heath care sector including also provision of more specialized care against visual impairment.

Several systemic risk factors for RVO are also associated with arterial thromboembolic events including myocardial infarction and cerebrovascular disease (12,13). From this perspective, it has been shown that the retinal blood vessels exhibit similar anatomic features and physiologic characteristics with cerebral vessels (1,14). Based on this evidence, it has been convincingly argued that there might be an association between RVO and myocardial infarction and cerebrovascular disease occurrence (1,14).

Our study may have several potential limitations due to the sample size and, particularly, sample representativeness. From this point of view, the number of individuals involved in this study was small and was confined only to one of the eleven primary health care centres of the municipality of Tirana. In addition, some individuals suffering from RVO might have not preferred to seek care in primary health services. Instead, some patients might have preferred more specialized care which is available at the University Clinic of Ophthalmology as a part of the University Hospital Centre "Mother Teresa", the only public hospital in Tirana. Also, some patients might have used private ophthalmology clinics which may currently provide better care in Albania. Based on these considerations, the representativeness of our study sample may be questionable and, therefore, our findings should not be generalized to the general population of Tirana and the overall population of Albania. Instead, findings of this study should be interpreted with extreme caution. On the other hand, the diagnosis of patients with RVO in our study was based on standardized and valid instruments, similar to studies conducted elsewhere. Nonetheless, we cannot entirely exclude the possibility of information bias related to socio-demographic data, in particular regarding the employment status of study participants.

In conclusion, notwithstanding some possible limitations, this study offers useful information about the distribution of socio-demographic factors and the clinical profile of primary health care users diagnosed with RVO in transitional Albania, an under-researched setting. Population-based studies should be carried out in the future in Albania in order to determine the magnitude and occurrence of RVO in the general population.

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