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Jose M. Martin-Moreno,
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EDITORIAL

The ethics effect

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Moral issues – Also in public health

Sometimes researchers and practitioners of public health are confronted with situations where it is not self-evident which option for action is the better choice. A decision about implementing a particular public health intervention can be difficult because there is a lack of scientific evidence that would speak clearly for or against its effectiveness. Moreover, a decision can be difficult because of moral values that are at stake. Indeed, taking a decision might sometimes feel like replacing one evil with another; or at least accepting some restrictions of liberty of individuals in the trade-off for another good, e.g. the health of others. Examples of difficult choices can be to implementing quarantines and isolations (like those being currently in place in relation to the Ebola outbreak in West-Africa), obligatory immunizations, prohibitions of risky behaviour or (re-)distributing resources.

Ethics is the discipline in which one asks systematically what the right and good choices are – in life in general, but also in academic and professional fields such as public health. Ethics asks *"Why should I do this or that?"* and the reply consists of giving reasons and developing an argument. Ethics hereby draws on principles, values and virtues and has developed substantive theories in the last two-and-a-half-thousand years. In medicine, the value of ethics for taking the right choices in the context of professional conduct, deeply rooted in the Hippocratic Oath, has a successful tradition of some decades by now. In the last century the combination of ethical argumentation with medical problems lead to intensive discourses under the name "bioethics" (1).

Bioethics, however, focuses on the individual patient and does not (usually) have a public health perspective. Yet, in public health there are, as just mentioned, many ethical challenges that request reasoning about choices. In 2003, Gaare Bernheim carried out a study with public health professionals. She found that public health practitioners *"often feel ill-prepared to make the ethical trade-offs and perceive a need for more education and support to make these decisions"* (2). Thus, it is no surprise that more and more actors in public health research and practice requested to introduce the discipline of ethics into public health science, practice and education. Schools of public health in the European region asked for more support from their association (ASPHER) to introduce ethics in their schools and curricula, because only some schools do offer ethics training in their bachelor or master programmes (3).

Integrating ethics into public health

The implementations of difficult public health interventions have usually lacked explicit preceding ethical analyses or had to contend with conflictive and ambiguous ethical principles. Yet, when we started several years ago to advocate introducing ethics into academic European public health discourses (4), we did not only preach to the converted. In fact, the term 'ethics' also had a negative effect on some public health researchers. Even though many researchers and practitioners applauded the introduction of ethical discourses into public health, we have also quite often heard that ethics is not the most urgently awaited for input for public health research. Colleagues were sceptical because, in their opinion, ethics commissions are the institutions that may hinder proper public health research. Sometimes public health practitioners were doubtful: Can ethics really be helpful? The answer becomes obvious when we realize that no health intervention, including a preventive or health promotion program, is risk-free. Even when the harm caused to a particular person by a public health intervention might be minimal, the impact can be extremely relevant if the intervention is targeted at the population level, most of whose recipients are healthy.

Among the opportunities ethics offers when being introduced into public health discourses are reflections about leading values and decision-making criteria, identification of normative loopholes or inconsistencies in argumentation, shifting burdens of proof among actors, and the like. Among the limits are that ethics does not offer a ready to use algorithm for making decisions and often the feeling prevails that after an ethical discussion one has not a definitive answer or is still confused – but on a higher level (as the physicist Enrico Fermi once formulated it in a different context).

The way forward

In our perspective, recent developments to establish public health ethics discourses are highly welcome, because of the ethics effect on human practice in general and public health research and practice in particular: having an understanding of what are the reasons for choosing A over B. Ethics can help to identify good reasons and unmask bad reasons. It is through the exchange of arguments, within discourses, through which public health can get (even) better: doing the right thing for the right reason. Because only if it is for the right reason – and not by chance, based on a prejudices or because of following a dogma – one can convince others; as Sen says *"bad reasoning can be confronted by better reasoning"* (5). And to identify good and convincing arguments is a task of ethics. Thus, ethics can and should be further integrated in public health education, research and practice – but it is still a long way to go until ethics is as well integrated into public health as it is into medicine. Let's continue to bring ethical discourses onto the table of public health researchers and practitioners. To contribute to this endeavour, we welcome in this journal articles that have ethics integrated into the public health perspective; or articles that deal with public health ethics explicitly.

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Sexual health knowledge, attitude and risk perception among in-school and out-of-school female adolescents in Onitsha, Anambra State, Nigeria

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Abstract

Aim: Young people need protective information and skills in order to reduce the risk associated with unsafe sex. This study assessed and compared the sexual health knowledge, attitude and risk perception of in-school and out-of-school female unmarried adolescents in Onitsha North Local Government Area, Anambra State, Nigeria.

Methods: A comparative cross-sectional design was used in which 391 in-school female adolescents (mean age: 15.9±1.4 years) were selected from 25 private and 17 public schools in Onitsha North Local Government Area, Anambra State, Nigeria using multistage sampling method. A comparison group of 392 out-of school female adolescents (mean age: 15.5±2.5 years) was also selected from a major market in the same Local Government Area using cluster sampling technique. Data was collected from the respondents with pre-tested, interviewer-administered questionnaires on reproductive and sexual health knowledge, risk perception and attitude, sexual behaviour, contraceptive knowledge and sources of sexual health information.

Results: In-school girls demonstrated better knowledge of sexual and reproductive health compared to their out-of-school counterparts. The awareness of fertile period, contraception methods, STI and HIV transmission and prevention were all significantly better among the in-school adolescents compared to their out-of-school counterparts ($P<0.05$). They also had markedly higher risk perception of getting pregnant ($P<0.05$) or acquiring HIV infection ($P<0.05$) compared to their out-of-school counterparts.

Conclusion: About 21% of adolescents in this study area were involved in risky sexual behaviour and this was higher among the out-of-school adolescents than their in-school counterparts. All stakeholders in the state and the Local Government Area should come together and develop interventions that would improve the sexual health knowledge and sexual risk perception of the adolescents.

Keywords: attitude, female adolescents, in-school, knowledge, Nigeria, Onitsha, out-of-school, risk perception, sexual health.

Introduction

Adolescents (10-19 years), especially females, are most vulnerable to unsafe sex. They also bear the brunt of the consequences. It is estimated that nearly two-thirds of premature deaths and one-third of the total disease burden in adults are associated with behavioural factors that began in youth and unprotected sex is mentioned among these factors (1). Most studies and interventions on adolescents in sub-Saharan Africa and Nigeria target in-school adolescents because they are easily accessible, easier to organize and monitor compared to those who are not in school. However, most of the secondary school age youths in Nigeria are not in school (63% of boys and 79% of girls) (2). Worldwide, about 120 million school-aged children are out of school and slightly more than half of these are girls and one-third of these children are in Sub-Saharan Africa and 10% in Nigeria (3). A recent study in Anambra state, Nigeria, reported that 43% of pregnant girls were expelled from school and none was recalled back (4). Similar studies conducted in Botswana also reported that most pregnant teenagers drop out of school (5).

Studies have shown that most out-of-school adolescents do not live with their parents and are found most times on the street, market places or motor parks hawking or serving as shop assistants to others (6-9). This is why most are vulnerable to unsafe sex and have lower sexual health knowledge compared to their in-school counterparts. Adolescents seek reproductive and sexual health information from a variety of non-formal sources that include peers, pornography and magazines. The unguided youth usually experiment with the information received and often become exposed to STIs, unwanted pregnancy among others. Young people need protective information and skills in order to reduce the risk associated with unsafe sex. Studies in other parts of Nigeria showed in-school adolescents reporting teachers and parents as their main sources of information while out-of-school adolescents reported friends and the media as their main sources of information on sexual health (10,11). The findings are consistent with studies carried out in other African countries like in Uganda where as many as 69% of out-of-school adolescents receive their information from their peers compared to only 8% of their counterparts (12). Research has shown that the knowledge of out-of-school adolescents on sexual health issues is poor. A study carried out in Lagos reported that two-fifths of respondents did not know that pregnancy could occur during their first sexual intercourse, most felt there was no risk associated with sexual intercourse and some had misconceptions that abstinence after menarche was harmful. Many of participants also felt that having sex was necessary to show love in relationships (13). In various studies, preferred sources of sexuality information include the health workers and parents (10,14-16). This is because they give reliable information unlike peers who could give wrong and misleading information.

The out-of-school adolescents are not easily accessible, because they are always on the move and not available for follow-up activities (12). Therefore, it is important to clarify the needs of both groups taking into consideration the social and environmental factors, peer norms, beliefs and values of the different groups in order to develop and implement successful prevention programmes for the two groups.

Onitsha, Nigeria, holds the largest market in West Africa, and second only to Lagos in youth concentration. Therefore, an area of large youth concentration such as Onitsha is most suited for this proposed research. The objectives of this study were to assess and compare the sexual health knowledge, attitude and risk perception of in-school and out-of-school female unmarried adolescents in Onitsha North Local Government Area (LGA), Anambra State, Nigeria.

Methods

Design and study area

A cross-sectional, comparative study was carried out in 2012 including unmarried in-school and out-of-school female adolescents aged 10-19 years residing in Onitsha North LGA in Anambra State, Nigeria. The Onitsha main market, reputedly the largest in West Africa, enjoys large patronage by traders and visitors from all over Nigeria and virtually all West African countries. There are other satellite markets (about 30) to relieve the enormous pressure on the main market. Many out-of-school children are found in every part of the market hawking virtually anything. Some are in the market as shop assistants, while some are left entirely on their own in some stores. This constitutes the setting for the out-of-school aspects of this study. Also, the Onitsha North LGA has 25 private schools and 17 public schools, giving a total of 42 schools. There are 22 mixed schools, 12 boys' only schools and 8 girls' only schools. Some of the schools belong to the mission, some a government-owned, while the rest are private schools.

Study population

The study population consisted of unmarried female adolescents between the ages of 10-19 years and comprised: a) In-school adolescents and b) Out-of-school adolescents**.** For in-school, only those in Senior Secondary School One to Senior Secondary School Three (SSS1-SSS3) were considered for the study for comparison with their counterparts. This is because most of the out-of-school adolescents are within the age range of those in these classes than the classes below. For out-of-school adolescents, those that had never been to secondary school, finished primary school but did not continue or had dropped out of secondary school were considered eligible. The exclusion criteria included, for in-school, all the post-secondary school adolescents, those with hearing, speech and mental disabilities; and for out-of-school, all adolescents employed or unemployed who had finished secondary school and those with mental, hearing or speech disabilities.

Minimum required sample size was determined for comparison of two independent groups (in-school vs. out-of school female adolescents) (17). Based on reports from previous studies conducted in Nigeria (13,18) and an anticipated response rate of 90%, a total of 236 individuals constituted the minimum sample size. However, it was decided to recruit a total sample of 800 female adolescents (400 among in-school adolescents and 400 among out-of school adolescents) in order to considerably increase the power of the study.

Selection of in-school adolescents consisted of a two-staged sampling technique which employed stratified sampling method in the first stage and simple random sampling method in the second stage. Secondary schools in the area were stratified into four categories as follows: two female-only private, six female-only public, 17 mixed private and five mixed public schools. From each of the strata, one school was selected using stratified random sampling technique. From each selected school, 100 respondents were chosen using simple random sampling method and ensuring proportionate representation from classes SSS1-SSS3 reaching a total sample size of 400 respondents.

Out-of-school adolescents were selected using cluster sampling technique as was done in previous studies (12,19). The market is estimated to have more than 60 clusters. Clusters of 30 were selected by simple random sampling from the sampling frame containing the list of all the clusters twice (13). Using the WHO cluster sampling method, seven consenting adolescents were selected from each cluster until a total of 400 respondents was reached. Since the clusters were in different directions, a bottle was spun and the direction of its mouth was used to show the starting point of the study.

Data collection

The same pre-tested interviewer-administered questionnaires were used for both in-school and out-of-school adolescents to ensure uniformity. The questionnaires were pretested among 20 in-school adolescents and 20 out-of-school adolescents in Nnewi North LGA for suitability, reliability, acceptability and appropriateness.

The questionnaires were used to collect information on variables such as: demographic characteristics, sexual health knowledge, attitude and HIV risk perception, pattern of sexual behaviour, contraceptive use and sources of sexual health information.

Eight hundred questionnaires were handed out, but 783 were returned (391 for in-school and 392 for out-of-school) – yielding an overall response rate of approximately 97.9%.

Data analysis

SPSS version 17 was used for data entry and analysis. Chi-square test was used to compare proportions of the categorical variables and t-test for comparison of mean values of the numerical variables. Differences and associations yielding p-values ≤0.05 were considered statistically significant.

Results

The mean age of in-school girls was 15.9±1.4 years and that of the out-of-school girls was 15.5±2.5 years. Most respondents in both groups were Catholics, though more predominant among in-school girls (59.8%) as shown in Table 1. Majority (57.9%) of the out-of-school girls lived most of their time with relatives, either of the two parents, friends and boyfriend compared to 77.7% of the in-school girls who lived most of their time with both parents (P=0.001).

Table 1. Socio-demographic characteristics of the groups *[numbers (column percentages)]*

Socio-demographic characteristics	In-school (N=391)	Out-of-school (N=392)	P-value*
Age (in years):			
10-13	9 (2.4)	84 (21.4)	0.001
14-15	135 (34.5)	91 (23.2)	
16-17	204 (52.1)	118 (30.1)	
18-19	43 (11.0)	99 (25.3)	
Religion:			
Roman Catholic	234 (59.8)	187 (47.7)	0.001
Protestant	90 (23.0)	132 (33.7)	
Pentecostal	54 (13.8)	69 (17.6)	
Islam	4 (1.0)	4 (1.0)	
Others-Sabbath, Jehovah's Witness	9 (2.4)	0 (0.0)	
Who they live with most time?			
Both parents	297 (77.7)	162 (43.9)	0.001
Relative	31 (8.4)	133 (35.7)	
Either parent	33 (9.0)	55 (14.9)	
Friends	4 (14.8)	23 (6.2)	
Boyfriend	1 (0.3)	9 (2.4)	
Other	2 (0.5)	0 (0)	

* *Chi-square test.*

In-school girls demonstrated better knowledge of sexual health compared to their peers that were out-of-school, as shown in Table 2. They had statistically significant knowledge of fertile period compared to their out-of-school counterparts (P=0.001). However, less than 30% of girls in both groups were aware of the fertile period in a woman's cycle. Also, the in-school respondents had better awareness of contraceptive methods, types of STIs and HIV transmission and prevention than the out-of-school respondents, all of which were statistically significant.

Table 2. Sexual health knowledge of the groups *[numbers (percentages)]*

Knowledge of sexual health	In-school	Out-of-school	P*
Knowledge of fertile period:			
During menstruation	45 (11.5)	76 (19.4)	
Immediately after menstruation	124 (31.8)	95 (24.2)	0.001
Half way between two periods	108 (27.7)	40 (10.2)	
Don't know	109 (27.9)	181 (46.2)	
Knowledge/Awareness of contraceptive methods:†			
Condom	285 (72.9)	267 (68.1)	
Abstinence	120 (30.7)	98 (25.0)	
Oral Pills	84 (21.5)	60 (15.3)	
Safe period	57 (14.6)	14 (3.6)	0.001
Injectables	38 (9.7)	28 (7.1)	
Withdrawal	47 (12.0)	13 (3.3)	
Others	2 (0.5)	0 (0.0)	
None	52 (13.3)	75 (19.1)	
Knowledge/Awareness of HIV/ AIDS/STIs:†			
HIV/AIDS	383 (98.0)	383 (97.7)	
Gonorrhea	264 (67.5)	217 (55.4)	
Syphilis	190 (48.6)	163 (41.6)	
Candidiasis	143 (36.6)	108 (27.6)	0.002
Chlamydia	13 (3.3)	12 (3.1)	
Herpes	18 (4.6)	8 (2.0)	
Others	11(2.8)	8(2.0)	
None	41 (10.5)	75 (19.1)	
Knowledge of HIV: HIV transmission can be:†			
By blood transfusion and sharing of sharp needles or blade	302 (77.2)	315 (80.4)	
Through mother to child transmission	171 (43.7)	97 (27.8)	
By sharing food with a person with HIV	33 (8.4)	64 (16.3)	
Through mosquito bite	24 (6.1)	66 (16.8)	0.001
By witchcraft or supernatural means	8 (2.1)	30 (7.7)	
Reduced by using condom	125 (32.0)	47 (12.0)	
Reduced by not having sex at all	151(38.6)	36 (9.2)	

* *Chi-square test.*

†*Multiple responses.*

The commonest methods of contraception known to both groups were condoms, followed by abstinence. Less than 50% in both groups were not aware of other methods of contraception. Almost all adolescents in both groups (98%) were aware of HIV as a type of STI, followed by gonorrhoea, syphilis and candidiasis. More than 50% of the girls in both groups knew that HIV can be transmitted by blood transfusion and sharing of sharp needles or blade. Sixteen percent of out-of-school girls had the misconception that HIV can be transmitted by sharing food with an infected person and also through mosquito bites compared to less than 10% of the in-school girls. Only 12% of the out-of school girls believed that HIV can be reduced using condoms, and a lower proportion of 9% believed it can be reduced by not having sex at all. This is in comparison to in-school girls with 32.0% and 38.6%, respectively (Table 2). Most of adolescents thought that a single sexual intercourse was enough for one to become pregnant or acquire HIV infection (Table 3). In-school girls had better perception of risk of getting pregnant (X^2=16.31, P=0.001) or acquiring HIV infection (χ^2=21.98, P=0.001), following a single sexual exposure. However, a greater proportion of their out-of-school peers perceived their chance of acquiring HIV to be high (χ^2=20.03, P=0.001). Although most of adolescents could not rate their risk of acquiring HIV infection, most of them felt that their chance of getting the disease is nil or low. Furthermore, although majority of adolescents believed that AIDS is real, in-school girls demonstrated better attitude. Two hundred and forty five (62.7%) in-school girls compared to 36.0% out-of-school girls did not agree that girls should be sexually experienced prior to marriage. Similarly, a significant proportion of adolescents agreed that unmarried couples should use condom sex (χ^2=27.84, P=0.001) (Table 3).

Table 3. Knowledge, attitude and risk perception *[numbers (column percentages)]*

Attitude and risk perception	In-school	Out-of-school	P*
Number of sex before one can become pregnant:			
Once	307 (78.5)	257 (65.6)	0.001
2-5 times	54 (13.8)	55 (14.0)	
>5 times	22 (5.6)	25 (6.4)	
Don't know	17 (4.4)	57 (14.5)	
Number of sex before one can get HIV infection:			
Once	312 (79.8)	254 (64.8)	0.001
2-5 times	55 (14.1)	48(12.3)	
>5 times	14 (3.6)	26 (6.6)	
Don't know	21 (5.4)	64 (16.3)	
Perceives self at risk of acquiring HIV infection:			
None	117 (29.9)	86 (21.9)	0.001
Low	29 (7.4)	40 (10.2)	
Moderate	15 (3.8)	8 (2.0)	
High	9 (2.3)	30 (7.7)	
Don't know	221 (56.5)	228 (58.2)	
A girl should have sexual experience before marriage:			
Agree	105 (26.9)	89 (22.7)	0.001
DNK/Unsure	41(10.5)	162(41.3)	
Disagree	245 (62.7)	141 (36.0)	
Do you believe that AIDS is real?			
Yes	372 (95.1)	358 (91.3)	0.029
No	9 (2.3)	24 (6.1)	
Don't know	10 (2.6)	10 (2.6)	
Unmarried couples should use condom during sex:			
Agree	148 (37.9)	128 (32.7)	0.001
Disagree	159 (40.7)	113 (28.8)	
Don't know	84 (21.5)	150 (38.3)	

* *Chi-square test.*

Discussion

A major threat to health of the adolescent stems primarily from their sexual behaviour which is partly influenced by lack of knowledge of reproductive health issues. For example, only a small proportion of both groups knew that a woman is likely to become pregnant half way between periods and even a smaller proportion of out-of-school respondents (10%) significantly differed from in-school adolescent (28%) in this regard. This is consistent with the finding of the NDHS (2008) where only 19% of all women knew the women's' fertile period (20). The study conducted in the northern part of Nigeria showed a lower result because only 3.1% knew when ovulation occurs (21). In South-Africa (22), it is 11%, while it is higher in Ethiopia (23) with 48%. This poor knowledge of fertile period amongst Nigerian adolescents may be the reason why the level of unwanted pregnancies and abortions is high. Currently, it is estimated that 23% of adolescents in Nigeria have begun child bearing (20). This finding strengthens the need to educate adolescents on reproductive and sexual health issues. However, a large proportion of both groups in this study knew that pregnancy is likely to occur at first sexual contact. This finding is consistent with the studies carried out in three states in Northern-Eastern Nigeria (49%) (15) and Lagos (60.5%) (24), but slightly lower with that carried out in Ethiopia (48%) (23).

A higher percentage of the in-school girls had better awareness of contraceptive methods than the out-of-school girls. The condom is mostly known by both groups followed by abstinence and oral pills. This agrees with findings of other studies conducted among adolescents (6,25-30). Adolescents and most young people have high awareness of condoms than most contraceptive methods (26). This is probably due to the much publicity given to preventive measures such as the condom with the onset of HIV pandemic; sometimes it is even distributed free of charge to the sexually active individuals. Ninety-eight percent of the two groups were aware of HIV/AIDS and this is consistent with the figures from the 2008 NDHS (20) and also with findings of studies carried out in Ghana (25), Malawi (27) and Uganda (28). Overall, the in-school adolescents significantly had better knowledge of HIV transmission and prevention than the out-of-school counterparts, 16.8% believed that mosquitoes can transmit HIV and only 9.2% believed that condom can prevent HIV transmission. This is not surprising as educational attainment is positively associated with increased awareness of HIV methods as reported in the 2008 NDHS (8) and other African countries (25,27-28). Both groups had better awareness of HIV than other STIs. This is common with most studies involving adolescents and is not surprising because of the pandemic nature and publicity given to HIV infection (13,16,25,27,28).

It is a common finding in studies involving the youth to discover that most do not consider themselves at risk of contracting HIV (25,27,28). In this study, more than half of the respondents in both groups do not consider themselves at risk or do not know that they are at risk of acquiring HIV infection. Misconceptions, ignorance, poverty, desire for pleasure and sex under the influence of alcohol amidst other factors may provide the possible explanation for the low risk perception (31). However, the in-school girls significantly had better perception of risk of getting pregnant (χ^2=16.31, P<0.05), or acquiring HIV infection (χ^2=21.98, P<0.05). They also had better attitude than their out-of-school counterparts. Overall, most disagree that girls should have sexual intercourse before marriage. Studies done in Lagos (13), Ethiopia (23) and Portugal (32) have also reported a similar finding.

Ninety-nine percent of the respondents affirmed that people had talked to them on issues of sexuality. In-school respondents had received their information mainly from parents and school teachers, while out-of-school girls had received information from youth organizations, parents and friends. This is consistent with results of similar studies done in Owerri (10), Benin (11) and in four other African countries (16). In this study, in-school adolescents significantly had more knowledge on sexual health than out-of-school adolescents. Involvement in schools and plans to attend higher education are all related to less sexual risk-taking and lower pregnancy. However, their knowledge of many sexual health issues was poor; a significant number of both groups did not know their fertile period and had some misconceptions of HIV/AIDS.

Our study may have some limitations. Due to the sensitive nature of the topic, some respondents found it difficult to respond to some questions. Furthermore, some of the parents were not willing to allow their adolescent children to be interviewed, especially for the out-of-school girls. There was also the problem of privacy in the market. However, in order to circumvent these problems, painstaking explanations on the purpose and benefits of the study were offered to all adolescents and a good number responded positively thereafter. In addition, our findings should be interpreted with caution due to the cross-sectional nature of our study design.

In conclusion, this study has revealed that in-school respondents showed higher knowledge of sexual and reproductive health issues than their out-of-school counterparts, probably because of the effect of the school environment. They had better knowledge of HIV transmission and prevention methods, STIs and contraception. However, both groups had low knowledge of fertile period and other forms of contraception. The in-schools girls also had better risk perception of HIV/AIDs and demonstrated better attitudes than the out-of-school girls towards pre-marital sex and condom use.

It is therefore recommended that out-of-school adolescents should be targeted to go through behavioural change communication (BCC) on sexual and reproductive health issues. Using the findings of the study as a baseline data, the Ministry of Health and Education, faith organizations, international and non-governmental bodies and all adolescent stakeholders should be encouraged to collaborate and cooperate with opinion leaders into impacting and improving the reproductive and sexual health knowledge of adolescents more so for the out-of-school adolescents. These could also happen by training and retraining more teachers and peer educators on issues of reproductive and sexual health for impartation on their students and their out-of-school counterparts.

Parents are the primary sexual educators of the children. Parents should be sensitized on the importance of providing a supportive home environment; maintaining strong ties with them and giving appropriate information on sexual issues according to their ages. This will bring about a level of family connectedness that will effect positive changes in the sexual behaviour of the adolescents. The responsibility of sensitizing parents can be taken up by the Ministry of Women Affairs with cooperation from faith-based organizations, representatives of market women, parents, teachers association and other bodies.

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ORIGINAL RESEARCH

Self-perceived level of competencies of family physicians in transitional Kosovo

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Abstract

Aim: Family physicians and general practitioners are currently facing increasing demands to meet patients' expectations and rapid technological and scientific developments. The aim of this study was to determine the self-perceived level of competencies of primary health care physicians in Kosovo, a post-war country in the Western Balkans.

Methods: A cross-sectional study was conducted in Kosovo in 2013 including a representative sample of 597 primary health care physicians (295 men and 302 women; mean age: 46.0±9.4 years; response rate: 90%). A structured self-administered questionnaire was used in order to determine physicians' competencies regarding different domains of the quality of health care. The questionnaire included 37 items organized into six subscales/domains. Answers for each item of the tool ranged from 1 ("novice" physicians) to 5 ("expert" physicians). An overall summary score (range: 37-185) and a subscale summary score for each domain were calculated for each participant. General linear model was used to assess the association of physicians' self-perceived level of competencies with covariates.

Results: The internal consistency of the whole scale (37 items) was Cronbach's alpha=0.98. Mean summary score of the 37-item instrument and subscale summary scores were all higher in men than in women. In multivariable-adjusted models, mean level of self-perceived competencies was higher among older physicians, in men, those with >10 years of working experience, physicians serving >2500 people, specialized physicians and those involved in training activities.

Conclusion: Our study provides useful evidence on the self-assessed level of competencies of primary health care physicians in post-war Kosovo. Future studies in Kosovo and other transitional settings should identify the main determinants of possible gaps in self-perceived levels of physicians' competencies vis-à-vis the level of physicians' competencies from patients' perspective.

Keywords: competencies, family physicians, general practitioners, primary health care.

Introduction

In the past few years, there is evidence of a growing interest in competency-based medical education as – among other things – it focuses on outcomes such as development of abilities, skills and competencies (1). Therefore, competency-based education has also been introduced in public health training and education in order to close the gap between public health educational content and the competencies required in public health practice (2).

As a matter of fact, there is overwhelming evidence indicating that primary health care professionals are presently facing growing demands in order due to meet patients' expectations for higher quality health care services, as well as the rapid technological developments and scientific progress (3,4). Therefore, at a global scale, health care professionals are increasingly expected to provide better-quality health care services, especially in line with the aging population trend observed in most of the countries. Consequently, quality improvement in different domains and components of health care services are currently recognized as essential issues in health care practice (3,4). For this very reason, quality improvement needs to be included at all levels of medical education and in all aspects of health care services with the ultimate goal of improving the health of the populations (4).

The required competencies for quality improvement are especially relevant for primary health care professionals who face a continuous and huge demand for high-quality health care services from the serving populations. In order to cope with this situation, there have been recently suggested models of required or desirable abilities, skills and competences for medical doctors and health professionals at all levels of care including also continuous professional development (5). Such frameworks or models of abilities, skills and competencies are also deemed as a valuable tool for self-assessment of primary health care professionals aiming at improving their health care practices, analyze their clinical experience, plan improvement strategies, and determine a supposed improvement integrating knowledge, skills and abilities into the routine daily practice (4,6,7).

However, to date, the information about the content, structure and outcomes of teaching quality improvement topics within the medical curricula in European countries and beyond is scant. This is especially true for the former communist countries of Southeast Europe including Albania and Kosovo[1]. In 2008, Kosovo emerged as the newest state of Europe after ten years under United Nations' administration following a devastating war (8). Currently, Kosovo is trying to rebuild its health system (9,10) and, among the reforming efforts, an important aspect is the reorientation of health services to ensure basic medical care for all individuals but especially so for the vulnerable segments of the population (9-11). One of the main challenges of the reform concerns the human resources pertinent to the health sector. Nevertheless, there are no well-documented reports informing on the level of competencies of physicians and other health care professionals in Kosovo.

In this framework, the aim of our study was to determine the self-perceived level of competencies of primary health care physicians in Kosovo, a post-war country in the Western Balkans which is currently facing a difficult period of political and socioeconomic transition.

Methods

A cross-sectional study was conducted in Kosovo in 2013 including a representative sample of primary health care physicians.

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[1] Kosovo: This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence". http://ec.europa.eu/enlargement/countries/detailed-country-information/kosovo/ (accessed: April 19, 2014).

Study population

Our study targeted a representative sample of primary health care physicians in five regions of Kosovo, namely Pristine, Gjilan, Gjakove, Prizren and Peje. According to the calculations of the sample size, a minimum of 612 physicians was required for inclusion in this survey. We decided to recruit 660 physicians (220 in Pristine and 110 in each of the other regions) in order to increase the power of the study.

Of the 660 targeted physicians, 597 participated in the survey (overall response rate: 597/660=90%). The response rate was somehow lower in Peje (87%) and Gjakove (88%), but higher in Prizren (95%). In Pristine, the capital of Kosovo, the response rate was 91%.

Of the 597 physicians included in our study, 295 (49.4%) were men and 302 (50.6%) were women. Mean age in the overall study population was 46.0±9.4 years.

The study was approved by the Ethical Board of the Ministry of Health of Kosovo. All physicians were sent an official invitation letter where the aims and procedures of the survey where explained in detail.

Data collection

An international instrument was developed with the support of the European Community Lifelong Learning Program aiming to self-assess the level of skills, abilities and competencies of primary health care physicians (4). This instrument has been already validated (cross-culturally adapted) in Albanian settings (12,13).

All physicians included in this survey were asked to self-assess their level of skills, abilities and competencies regarding the following six essential domains of quality of primary health care (4): (i) Patient care and safety (8 items); (ii) Effectiveness and efficiency (7 items); (iii) Equity and ethical practice (8 items); (iv) Methods and tools (5 items); (v) Leadership and management (4 items), and; (vi) Continuing professional development (5 items).

Responses for each item of each subscale ranged from 1 (“novice”= physicians have little or no knowledge/ability, or no previous experience of the competency described and need close supervision or instruction) to 5 (“expert”=physicians are the primary sources of knowledge and information in the medical field).

An overall summary score (including 37 items; range: 37-185) and a subscale summary score for each of the six domains were calculated for all primary health care physicians included in this study.

Demographic data (age and sex of participants), information on working experience, number of population served, working place, type of specialization and involvement in teaching/training activities were also collected.

Statistical analysis

Median values (and their respective interquartile ranges) were used to describe the distribution of age, duration of work experience and the number of population served among male and female physicians included in this study. On the other hand, frequency distributions (absolute numbers and their respective percentages) were used to describe the distribution of sex, working place, specialization, involvement in teaching and training activities of study participants.

Cronbach’s alpha was employed to assess the internal consistency of the overall scale (37 items) and each of the six subscales/domains of the measuring instrument.

Mean values (and their respective standard deviations) were used to describe the distribution of the summary score of the overall tool (37 items) and the summary scores of each of the six subscales/domains. Mann-Whitney’s U-test was used to assess sex-differences in the mean values of the overall level of competencies (37 items) and the competency levels of each subscale of the instrument.

General linear model was used to assess the association of self-assessed overall level of competencies with demographic characteristics, work experience, type of specialization and involvement in teaching/training of physicians included in this study. Initially, crude (unadjusted) mean values of the overall level of physicians' self-perceived competencies and their respective 95% confidence intervals (95%CIs) were calculated for each category of the covariates (age, dichotomized into: ≤40 years vs. >40 years; sex: men vs. women; working experience, dichotomized into: ≤10 years vs. >10 years; number of population served, dichotomized into: ≤2500 people vs. >2500 people; working place, dichotomized into: Pristina vs. other regions; specialization: general practice, family medicine, other specializations; and involvement in teaching/training activities: no vs. yes). Subsequently, multivariable-adjusted mean values and their respective 95%CIs were calculated.
SPSS (Statistical Package for Social Sciences, version 15.0), was used for all the statistical analyses.

Results

Overall, median age among study participants was 47 years (interquartile range: 40-53 years) (Table 1). Conversely, median duration of working experience in the overall sample of physicians was 13 years (interquartile range: 6-21 years). About 34% of primary health care physicians worked in Pristina, whereas 66% of them worked in the other regions of Kosovo. About 31% of participants were general practitioners, 49% were family medicine, whereas 20% had received different medical specializations (such as cardiology, paediatrics, internal medicine, gastroenterology, rheumatology, or obstetrics-gynaecology). About 29% of the physicians were involved in teaching and training activities in Family Medicine (Table 1).

Table 1. Distribution of demographic characteristics, work experience and specialization in a representative sample of primary health care physicians in Kosovo, in 2013 (N=597)

Variable	Distribution
Age (years)	47.0 (40.0-53.0)*
Sex:	
Men	295 (49.4)†
Women	302 (50.6)
Working experience (years)	13.0 (6.5-21.0)*
Number of population served	3000 (2500-4000)*
Working place:	
Prishtina	201 (33.7)†
Gjilan	98 (16.4)
Gjakova	97 (16.2)
Prizren	105 (17.6)
Peje	96 (16.1)
Specialization:	
General practice	187 (31.3)†
Family medicine	292 (48.9)
Other specializations‡	118 (19.8)
Involved in teaching:	
No	427 (71.5)†
Yes	170 (28.5)

* Median values and interquartile ranges (in parentheses).

† Numbers and column percentages (in parentheses).

‡ Cardiology, paediatrics, internal medicine, gastroenterology, or rheumatology.

The internal consistency of the overall scale (37 items) was Cronbach's alpha=0.98 (Table 2). In general, Cronbach's alpha was high for all the subscales [ranging from 0.86 (for the "leadership and management" domain) to 0.94 (for the "patient care and safety" and "methods and tools" subscales)].

Table 2. Internal consistency of each domain (subscale) of the instrument

Domain (subscale)	**Cronbach's alpha**
Overall scale *(37 items)*	0.98
Patient care and safety *(8 items)*	0.94
Effectiveness and efficiency *(7 items)*	0.93
Equity and ethical practice *(8 items)*	0.90
Methods and tools *(5 items)*	0.94
Leadership and management *(4 items)*	0.86
Continuing professional development *(5 items)*	0.90

In the overall sample of male and female physicians (N=597), the summary score for the 37 items of the tool was 147.7±24.3 (Table 3). The summary score of self-perceived competency level was significantly higher in men compared to women (151.2±24.3 vs. 144.1±23.8, respectively, P<0.001). As a matter of fact, the subscale scores were all significantly higher in men than in women, except the "methods and tools" domain which was not significantly different between men and women (19.6±4.0 vs. 19.0±4.0, respectively, P=0.09).

Table 3. Summary score of each domain (subscale) of the instrument by sex

Domain (subscale)	**Overall (N=597)**	**Sex-specific**		
		Men (N=295)	**Women (N=302)**	**P**[†]
Overall scale ***(score range: 37-185)***	147.7±24.3[*]	151.2±24.3	144.1±23.8	<0.001
Patient care and safety ***(score range: 8-40)***	31.5±5.6	32.4±5.6	30.6±5.5	<0.001
Effectiveness and efficiency ***(score range: 7-35)***	27.1±4.9	27.8±4.9	26.3±4.9	<0.001
Equity and ethical practice ***(score range: 8-40)***	33.7±5.3	34.5±5.2	33.0±5.4	0.001
Methods and tools ***(score range: 5-25)***	19.3±4.0	19.6±4.0	19.0±4.0	0.090
Leadership and management ***(score range: 4-20)***	15.8±3.2	16.2±3.3	15.4±3.2	<0.001
Continuing professional development ***(score range: 5-25)***	20.2±3.4	20.8±3.4	19.7±3.4	<0.001

[*] Mean values ± standard deviations.

[†] P-values from Mann-Whitney U test.

Table 4 presents the association of self-perceived competencies with covariates. In crude/unadjusted general linear models, mean level of self-assessed competencies was significantly higher among older physicians, in men, those with >10 years of working experience, physicians serving >2500 people, specialized physicians and those involved in teaching and training activities (all P<0.001). Physicians working in the capital city had a borderline significantly higher mean level of self-perceived competencies compared with their counterparts operating in the other regions of Kosovo (P=0.052). Upon multivariableadjustment, findings were somehow attenuated, but remained essentially the same and highly statistically significant. Hence, mean level of self-perceived competencies was higher among older physicians (P=0.022), in men (P<0.001), those with >10 years of working experience (P<0.001), physicians serving >2500 people (P=0.007), specialized physicians (P<0.001) and those involved in teaching and training activities (P<0.001). On the other hand, in multivariable-adjusted models, physicians working in Pristina had a significantly higher mean level of self-perceived competencies than those operating in the other regions of Kosovo (150.1 vs. 145.6, respectively, P=0.008).

Table 4. Association of self-assessed competencies with demographic characteristics, work experience and specialization of primary health care physicians in Kosovo

Variable	**Crude (unadjusted) models**[*]		**Multivariable-adjusted models**[†]	
	Mean (95%CI)	**P**	**Mean (95%CI)**	**P**
Age:				
≤40 years	129.3 (125.9-132.6)	<0.001	145.2 (141.4-149.0)	0.022
>40 years	154.5 (152.4-156.5)		150.5 (148.2-152.7)	
Sex:				
Men	151.2 (148.5-153.9)	<0.001	150.9 (148.1-153.8)	<0.001
Women	144.1 (141.4-146.9)		144.7 (142.2-147.2)	
Working experience (years):				
≤10 years	132.5 (129.9-135.0)	<0.001	143.7 (140.7-146.8)	<0.001
>10 years	158.8 (156.6-160.9)		151.9 (148.8-155.1)	
Number of population served:				
≤2500	137.3 (134.2-140.4)	<0.001	145.5 (142.4-148.6)	0.007
>2500	153.4 (151.1-155.7)		150.2 (147.8-152.6)	
Working place:				
Prishtina	150.4 (147.0-153.7)	0.052	150.1 (147.0-153.2)	0.008
Other regions	146.3 (143.9-148.7)		145.6 (143.3-147.9)	
Specialization:				
General practice	126.9 (124.1-129.7)	reference	135.3 (131.9-138.7)	reference
Family medicine	154.9 (152.7-157.2)	<0.001	151.7 (148.8-154.6)	<0.001
Other	162.8 (159.2-166.3)	<0.001	156.5 (152.3-160.7)	<0.001
Involved in teaching:				
No	142.9 (140.7-145.1)	<0.001	144.1 (141.9-146.4)	<0.001
Yes	159.5 (156.0-163.0)		151.5 (148.3-154.8)	

[*] Mean values, 95% confidence intervals (95%CI) and p-values from the General Linear Model.

[†] General Linear Models simultaneously adjusted for all the variables presented in the table.

Discussion

Our study obtained evidence on the self-perceived level of competencies of physicians working at primary health care services in post-war Kosovo. The sample size included in this survey was big and representative of all the physicians working at primary health care services in Kosovo.

Main findings of our study include a higher level of self-perceived competencies among male physicians, older participants, those with a long working experience, physicians serving a larger population size, specialized physicians and those involved in training activities.

Overall, the international instrument employed in this survey exhibited a high internal consistency in this representative sample of physicians operating at primary health care centres in different regions of Kosovo. In general, the internal consistency was high for each domain/subscale of the instrument.

It should be noted that each subscale/domain of the instrument employed in our survey taps a crucial component of the quality of primary health care. As reported elsewhere (4), the domains of the instrument imply reflection and self-assessment in order to improve the quality of health care provision (6). Furthermore, each domain of the instrument measures a number of specific competencies which represent individual standards (7).

Many studies reported in the international literature have linked the quality of health care services with health outcomes of the population (14,15). This is especially relevant for primary health care services which are considered as the most important level of health care in many developed countries (16), but also developing and transitional countries. Therefore, physicians and other health care professionals working at primary health care centers should be extremely concerned of users' demands, a process which is related to the need for continuous improvement of the quality of primary health care services. Furthermore, the "gate-keeping" function of primary health care services requires a substantial degree of patients' satisfaction.

Future studies should be conducted in the Western Balkans and beyond employing a similar methodology and the same standardized instrument as reported in our study conducted in Kosovo. If so, it would be interesting to compare our findings on the self-perceived level of primary health care physicians' competencies with their counterparts from the neighbouring countries in Southeast Europe and beyond. Also, determinants of self-perceived level of physicians' competencies should be explored in future research studies.

A study was conducted in Kosovo in 2013 including a representative sample of 1340 primary health care users aged ≥18 years (49% males aged 50.7±18.4 years and 51% females aged 50.4±17.4 years) in order to assess their perceptions on the level of competencies of their primary health care physicians (17). According to this report, the level of competencies of family physicians from patients' perspective was significantly lower than physicians' self-assessed level of competencies evidenced in our study. Hence, the mean value of the overall summary score for the 37-item instrument was 118.0±19.7 according to patients' perspective (17), which is considerably lower compared with our findings related to the mean value of physicians' self-assessed level of competencies (147.7±24.3) (Table 3). In the primary health care users' survey, the perceived level of physicians' competencies was higher among the younger and the low-income participants, and in patients who reported frequent health visits and those not satisfied with the quality of the medical encounter (17). On the other hand, no sex, or educational differences were evident in the survey including primary health users (17). It is appealing to determine in future studies the underlying factors of this differential competency level between health care providers (physicians) and users of services (patients).

Our study may have several limitations. Our survey included a large representative sample of primary health care physicians and the response rate was high. Nevertheless, we cannot exclude the possibility of information bias. In any case, we used a standardized instrument which was cross-culturally adapted in the Albanian settings (12,13). Furthermore, there is no reason to assume differential reporting on the level of competencies by different demographic categories of physicians, or other background variables included in our study.

In conclusion, our study provides useful evidence on the self-assessed level of competencies of primary health care physicians in post-war Kosovo. Findings from this study may help policymakers and decision-makers in Kosovo to perform necessary adjustments to the job description and terms of references pertinent to the work contracts of primary health care physicians in this transitional country. Nonetheless, future studies in Kosovo and other transitional settings should identify the main determinants of the apparent gaps in self-perceived levels of physicians' competencies vis-à-vis the level of physicians' competencies from patients' perspective.

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Conflicts of interest: None declared.

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ORIGINAL RESEARCH

Health-related behaviour among managers of Slovenian hospitals and institutes of public health

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Abstract

Aim: Behavioural risk factors have a significant impact on health. We aimed to assess health-related behaviour, health status, and use of healthcare services among managers of Slovenian hospitals and institutes of public health.

Methods: This was a cross-sectional study which included management (directors, scientific directors, directors' deputies) of Slovenian hospitals and institutes of public health (63 respondents; 57% women; overall mean age: 51±7 years; response rate: 74%). Data were obtained using an anonymous self-administered questionnaire.

Results: About 35% of respondents were directors. More than half of the respondents were overweight or obese (52%), the majority were not sufficiently physically active (59%) and overloaded with stress (87%). Hypercholesterolemia (36%), spinal disease (17%), and arterial hypertension (16%) were most common chronic diseases. Whilst only few participants visited their general practitioner due their health complaints, blood pressure (76%), cholesterol (51%), and glucose (54%) were measured within last year in most of the respondents.

Conclusion: Our findings point to a high prevalence of overweight and obesity as well as workplace-related stress among Slovenian public health managers. Therefore, effective preventive strategies should be focused on stress management along with promotion of healthy behavioural patterns.

Keywords: behavioural risk factors, healthy lifestyle, health promotion, healthcare institutions, managers.

Introduction

Behavioural risk factors such as smoking, excessive alcohol consumption, unhealthy diet, lack of physical activity, and stress have a significant impact on health. Previous studies have shown that cardiovascular disease, cancer, diabetes mellitus and some other chronic diseases are main causes of morbidity and mortality in developed countries, which can be largely attributed to unhealthy lifestyle (1). In a large prospective randomized study (N=2,339), Knoops and colleagues clearly indicated that individuals who followed the principles of the Mediterranean diet, consumed alcohol moderately, were regularly physically active, and refrained from smoking, had significantly lower cardiovascular and cancer mortality when compared to those with at least one behavioural risk factor (2).

Significant changes in employment policies that have emerged recently have exposed employees to new risks in terms of workplace safety and health. These are not limited to physical, biological and chemical risks, but expand to work-related psychosocial risk in particular (1,3). Funding restrictions, constant need for cost reduction, implementation of modern technology and clinical guidelines, as well as increased patient awareness and expectations increase the burden and responsibilities hospital managers need to cope with (3). Sounan and colleagues reported about negative associations between performance and health of hospital managers with workload, stress, psychical burden, and burnout they are exposed to (4). Furthermore, studies have shown that individual lifestyle pattern of managers also influences attitudes towards preventive activities and health promotion in the organisations they are employed in (5-8).

In Slovenia, there is scarce information about health-related behaviour and health status of healthcare institution managers. In 2005, Stergar and Urdih-Lazar conducted a survey among Slovenian managers about their attitudes towards own and employees' health and their willingness to implement health promotion programs (9). They mailed 5,500 questionnaires to large, medium and small enterprises and public institutions (including healthcare institutions) and received reply from about one third. Respondents were willing to take measures in different lifestyle areas, primarily in the fields of diet, physical activity, and weight management. More than two thirds, mostly those who already had health promotion in place and those who considered there is room for improvement of employees' health, would take health promotion actions and would be involved personally (9).

Individual health-related behaviour and healthy lifestyle pattern can translate to wider community, in particular if the individual is in position and has capacity to involve appropriate mechanisms. Healthcare institutions should serve as an example for preventive strategies and healthy lifestyle, which should be promoted and organized from a top-down perspective. With little available information, we aimed to assess health-related behaviour, health status and use of healthcare services among managers in Slovenian hospitals and institutes of public health. Our objectives were to have a snapshot of their daily habits, risk factor and disease burden, as well as their incentives to prevent diseases of modern age.

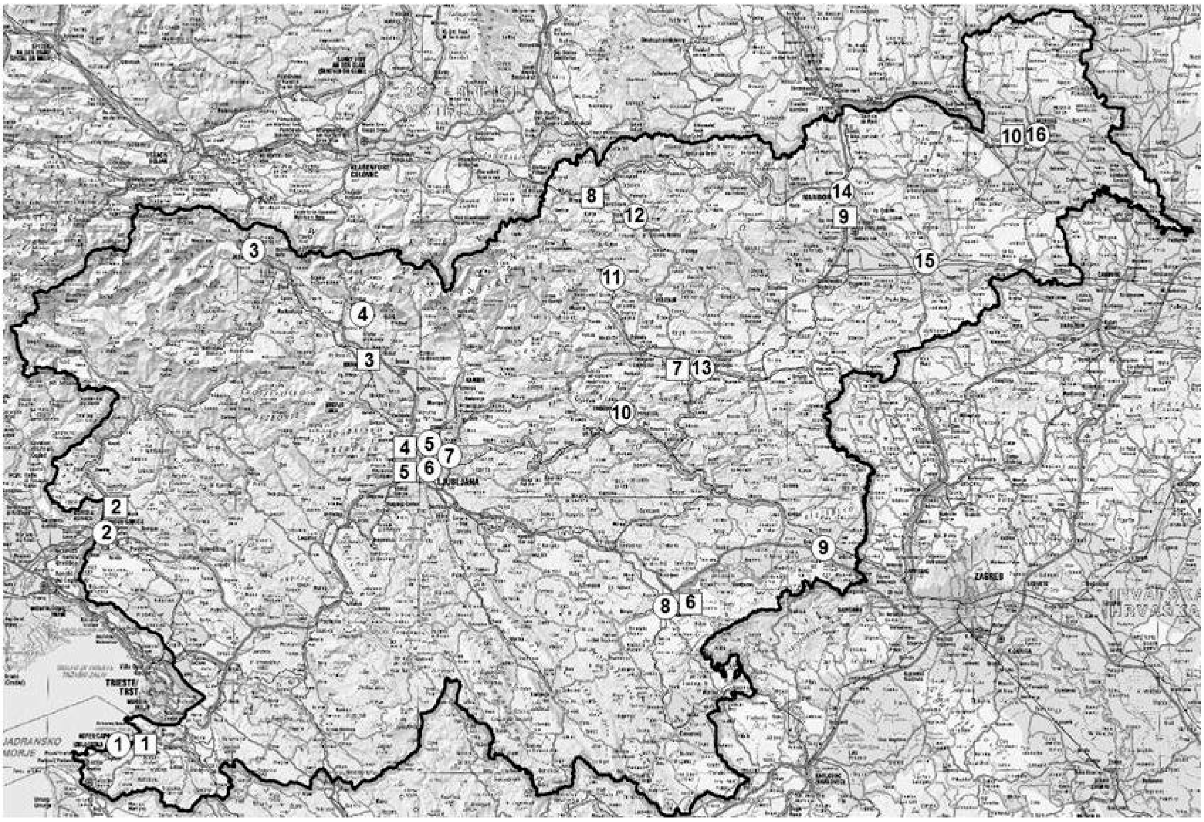
Methods

Study design and subjects

In this cross-sectional study, we invited management (directors, scientific directors, directors' deputies) of Slovenian general hospitals, university clinics, regional institutes of public health and national institute of public health – Figure 1. Information on the composition of each healthcare institution management is publicly available and accessible through healthcare institutions' websites; thus, we were able to invite all eligible subjects.

The study was conducted under auspices of Slovenian Network of Health Promoting Hospitals and Health Services in collaboration with Chair of Public Health, Faculty of Medicine, University of Ljubljana.
The study protocol was revised and approved by the National Medical Ethics Committee.

Figure 1. Healthcare institutions included in the study



□ 1-Regional Institute of Public Health (RIPH) Koper; 2-RIPH Nova Gorica; 3-RIPH Kranj; 4-RIPH Ljubljana; 5-National Institute of Public Health of the Republic of Slovenia; 6-RIPH Novo mesto; 7-RIPH Celje; 8-RIPH Ravne na Koroskem; 9;RIPH Maribor; 10;RIPH Murska Sobota.

○ 1-General Hospital (GH) Izola; 2-GH dr. Franca Derganca Nova Gorica; 3-GH Jesenice; 4-University Clinic of Respiratory and Allergic Diseases Golnik; 5-University Medical Centre Ljubljana; 6-University Rehabilitation Institute of the Republic of Slovenia; 7-Institute of Oncology Ljubljana; 8-GH Novo mesto; 9-GH Brezice; 10-GH Trbovlje; 11-Topolsica Hospital; 12-GH Slovenj Gradec; 13-GH Celje; 14-University Medical Centre Maribor; 15-GH dr. Jozeta Potrca Ptuj; 16-GH Murska Sobota.

Data collection

The “Countrywide Integrated Non-Communicable Disease Intervention (CINDI) Health Monitor Core Questionnaire”, a standardized, validated and publicly available questionnaire, previously used for national health-related behaviour studies in Slovenia (10,11) was used to compile the study questionnaire. Anonymity was provided for all participants.
Overall, 30 questions were organized into three sections: demographic and other basic characteristics, health-related behaviour (smoking status, dietary habits, alcohol intake, physical activity, body weight and height), and health status including use of healthcare services (self-rated health, care for health, healthcare services utilization, diseases, and medication use). Questions regarding stress were also included. Additionally, we inquired

about participants' beliefs regarding the risk factor that predominantly contributes to poor health and high morbidity and mortality burden of the Slovenian adult population.

To reduce the risk for confounding responses the data collection was designed using a multiple-choice format with obligatory (required) items to be answered. In only five opened questions we inquired about year of birth, number of daily meals, body weight and height, and number of days per week and duration of physical exercise (all numerical values).

Questionnaires were mailed during April 2012 with study description, an invitation for study participation, and preaddressed return envelope. To enhance the study response, a gentle reminder notice was sent to all participants twice after first invitation and served as acknowledgement of participation (if individuals already responded), or as reminder to complete the questionnaire (if they did not respond to the initial invitation).

One unit of fruit or vegetables corresponded to 100g of fruit or vegetables (e.g. two tomatoes, or one bowl of salad, or one pot of turnip for vegetables; one middle sized apple, or one small banana, or one pot of cherries for fruits), as already used previously (10).

Body mass index (BMI) was calculated as body weight in kilograms divided by square of body height in meters. Malnutrition was defined as BMI<18.49 kg/m^2, normal nutritional status as 18.50-24.99 kg/m^2, overweight as 25.0-29.99 kg/m^2, and obesity as >30.0 kg/m^2 (12).

We inquired about leisure-time physical activity, including type and intensity of exercise (vigorous intensity: aerobics, running; moderate intensity: brisk walking, slow swimming; low intensity: walking), usual number of days with activity per week, and usual duration of exercise (less than, or more than 30 minutes). As per World Health Organisation (WHO) recommendations, at least 150 minutes of moderate or more intensive exercise was considered as beneficial for health (13), and subjects were divided into two groups by this cut-off.

When asked about contacts with their general practitioner or specialist, only visits related to personal issues were relevant for this study.

Statistical analysis

Descriptive statistics were used to present mean values and their respective standard deviations for the numerical variables, and absolute numbers and their respective proportions for the categorical variables.

SPSS, version 19.0 (Statistical Package for Social Sciences, SPSS Inc., Chicago, Illinois, USA) was used for all the statistical analyses.

Results

Response rate and study participants' characteristics

We mailed 85 questionnaires to all eligible management members, and received 66 responses (77.6%). Of those, three questionnaires were incomplete; thus, our final sample consisted of 63 (74.1%) subjects with an average age of 51.3±7.5 years. Most of them were women (57.1%), with at least a university degree (92.1%), and were acting as a director (34.9%). Other basic characteristics of study participants are presented in Table 1.

Health-related behaviour

Most of respondents never smoked (68.3%), whereas 12.7% were current smokers. Three daily meals was the most common type of dietary pattern (50.8%), whilst 20.6% and 7.9% of respondents consumed two or five meals, respectively. When consuming dairy products, 74.6% would usually select low-fat products. Whole-grain (27.0%), various sorts (25.4%) and white (15.9%) would usually be the first choice of bread. Almost two thirds of respondents (63.5%) consumed daily 1-3 units of vegetables and 1-3 units of fruit. Most of respondents never used salt for served food (57.1%), and the rest would taste food prior to any additional salt. During last year, 19 (30.2%) respondents consumed alcohol few times yearly, 15 (23.8%) consumed alcohol twice a week, and 6 (9.5%) of respondents abstained completely.

Mean BMI was 25.2±4.2 kg/m^2, with 28 (44.4%) subjects being overweight and 5 (7.9%) obese; 50.8% were satisfied with their weight, whereas 30 (47.6%) would have liked to lose weight.

Car was a usual means of transport for most of respondents (84.1%), and only 7.9% walked or ride a bike to workplace. Very intense exercise was not practiced by 28 (44.4%), and the rest were usually active for >30 minutes per session, but mostly only once per week. Most individuals (49.2%) practiced moderate exercise up to three times/week, for >30 minutes (63.6%). Walking at least five times/week (65.0% of them for >30 minutes) was practiced by 17.5% of participants. WHO's criteria for healthy physical activity were not met by 58.7% of respondents.

Table 1. Basic characteristics of study participants

Basic characteristics	**Number (column percentage)**
Sex:	
Women	36 (57.1)
Men	27 (42.9)
Age:	
30-39 years	5 (8.0)
40-49 years	18 (28.7)
50-59 years	33 (52.4)
60-69 years	7 (11.2)
Marital status:	
Married	46 (73.0)
Consensual union	7 (11.1)
Single	6 (9.5)
Divorced	4 (6.3)
Widowed	0 (0)
Education:	
Secondary	1 (1.6)
College	4 (6.3)
University	31 (49.2)
Master or doctoral degree	27 (42.9)
Position:	
Director	22 (34.9)
Scientific director	11 (17.5)
Deputy, nursing	13 (20.6)
Deputy, other	17 (27.0)
Residence community:	
Urban	33 (52.4)
Suburban	16 (25.4)
Rural	14 (22.2)

Tension or stress was reported as daily, frequent and occasional experience by 6.3%, 31.7% and 49.2% of respondents, respectively. Workplace was the main cause of stress (73.0%), followed by poor relations with co-workers (20.6%) and family issues (6.3%).

Figure 2 presents how respondents cope with stress. Holiday leave pattern was balanced as 52.4% take few days several times per year and the rest prefers a longer leave.

We also inquired about participants' beliefs regarding importance of risk factors for poor health, morbidity and mortality burden in Slovenia (Figure 3).

Figure 2. Management of tensions, stress and pressures

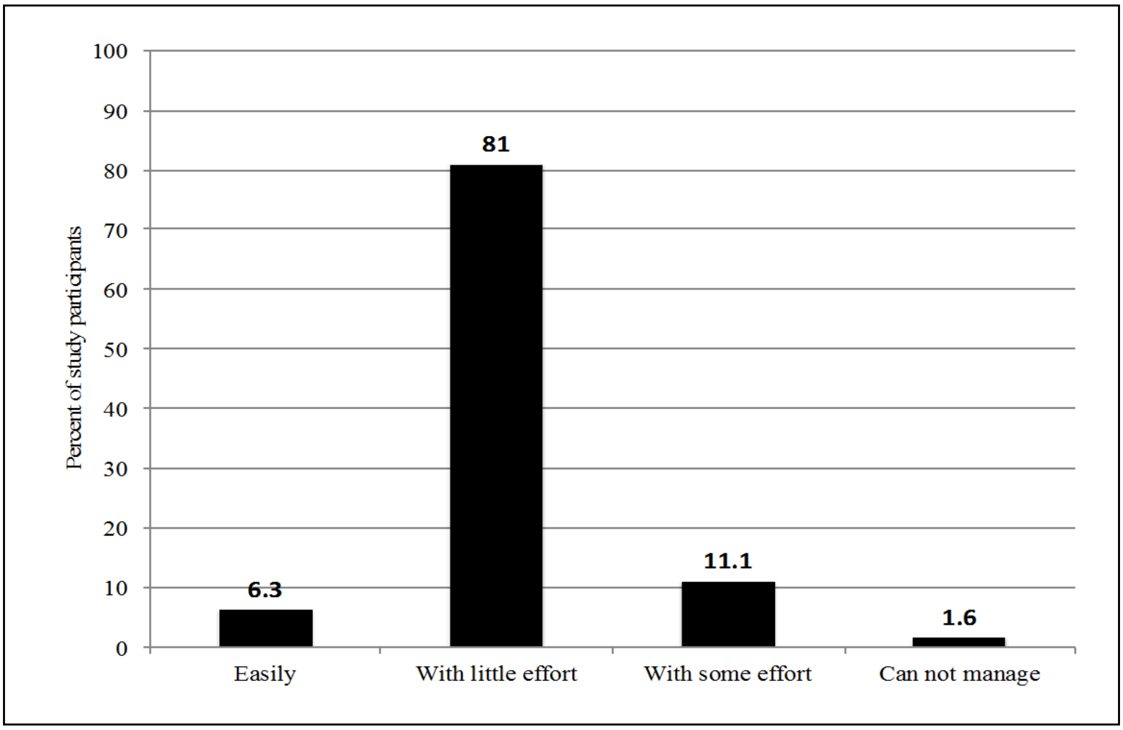
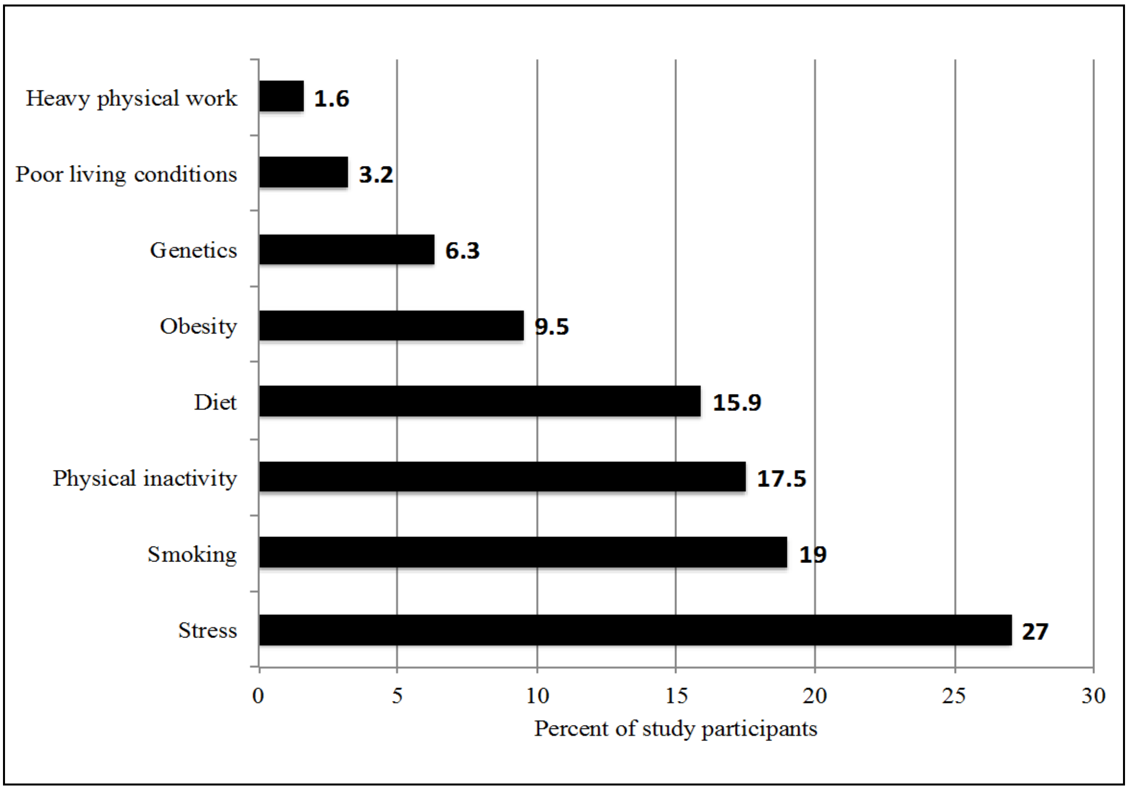


Figure 3. The risk factor that predominantly contributes to poor health and high mortality of the adult population in Slovenia



Health status and use of healthcare services

Most of respondents rated their health as good (68.3%), or very good (19.0%). More than half (58.7%) considered they took sufficient care for their health, whereas about a third (28.6%) deemed their care as inadequate.

During past year, 50.8% did not see their general practitioner or specialist, 44.4% cumulated three visits, and 4.8% had four or more visits.

Table 2 summarizes the prevalence of diseases or conditions diagnosed by a doctor and Figure 4 provides information about various diagnostic tests. In the week prior to study, 63.5% of respondents regularly took one medication, 25.4% had two, and 9.5% had three drugs. Vitamins and minerals (44.4%), medications against headache (27.0%), herbal medications (19.0%), antihypertensives (15.9%) and hypolipemics (12.7%) were the most commonly used medications.

Table 2. Prevalence of diseases or conditions in study participants diagnosed by a doctor

Disease or condition	Number (percentage)
Arterial hypertension	10 (15.9)
Hypercholesterolemia	23 (36.5)
Diabetes mellitus	2 (3.2)
Myocardial infarction	1 (1.6)
Angina pectoris	0 (0)
Heart failure	0 (0)
Stroke	1 (1.6)
Diseases and injuries of spine	11 (17.5)
Arthritis or arthrosis	7 (11.1)
Chronic obstructive pulmonary disease	0 (0)
Asthma	3 (4.8)
Gastric or duodenal ulcer	1 (1.6)
Liver cirrhosis	0 (0)
Depression	0 (0)
Thyroid disease	1 (1.6)

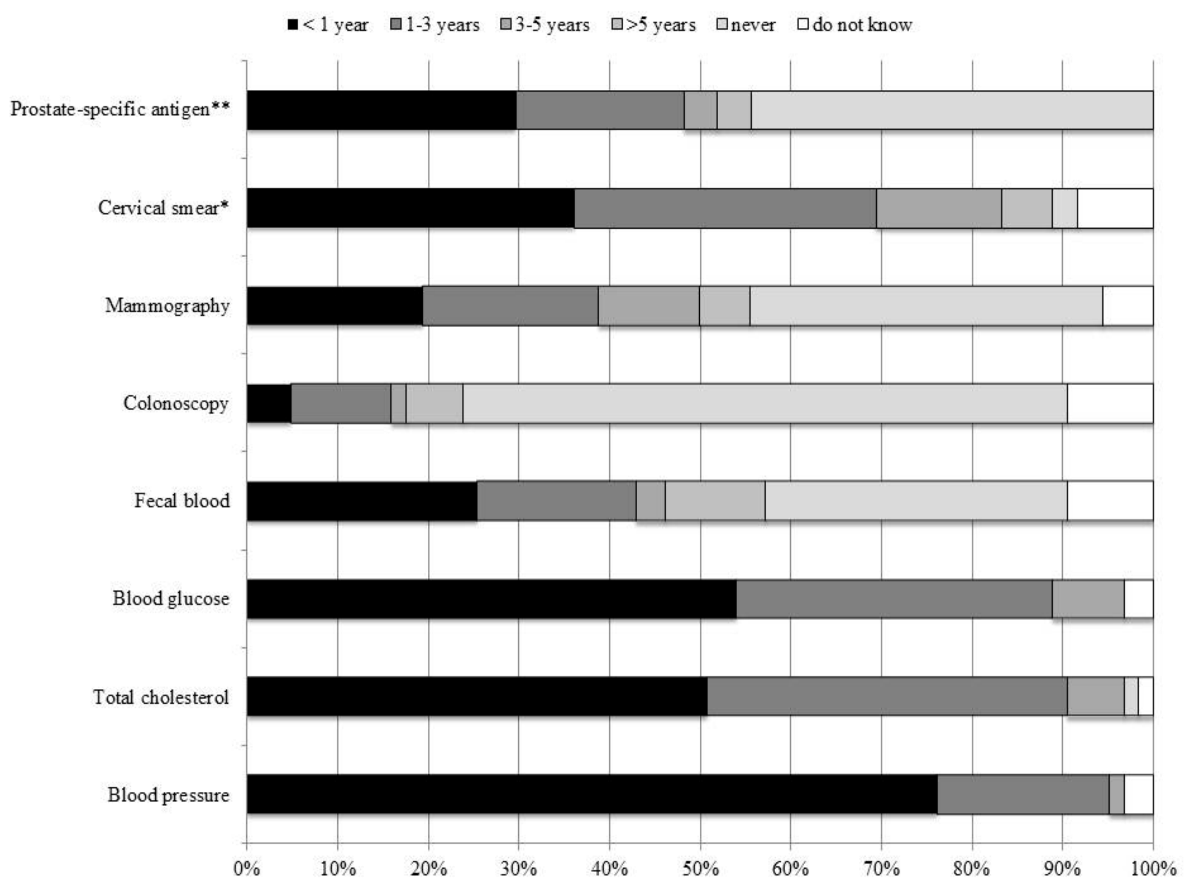
Discussion

Among Slovenian healthcare institution management, insufficient physical activity, overweight, and stress associated with workplace were most common behavioural risk factors. Most of respondents assessed chronic disease risk factors within last three years, perceived their health as good or better and considered they take sufficient care of their health. The most common disease was hypercholesterolemia, with a prevalence higher than the prescription of hypolipemic medications.

In comparison to results of “CINDI Health Monitor Survey 2008” (N=7,352, aged 25-74 years) managers in our study were somewhat more likely to report healthy dietary habits (e.g. low-fat dairy products, whole-grain bread, several units of fruit and vegetable daily) than the Slovenian general population, with no difference in number of daily meals (14). Additionally, managers in our study performed less often leisure-time physical activity, whilst frequent or daily exposure to stress was more common and usually associated with workplace burden and poor relations with co-workers.

Many healthcare institution managers have medical background thus comparison with previous reports of healthcare workers are possible. Fortic reported about regular smoking prevalence in the period 1972-1986, which was 30% among male healthcare workers and 20% among female healthcare workers (15). A recent Slovenian National Institute of Public Health study showed that 20.9% of healthcare workers are regular smokers, which is lower than a decade ago, and also lower than among general population. About half (52.9%) started smoking during the secondary school, but 15.6% started during the first years of work in a healthcare institution. Moreover, about a quarter reported that employees in their institution are not following the smoking ban (16). Similar information about smoking prevalence among healthcare workers is evident from Greece, Spain, Portugal, France, and Poland, with figures being the same or higher than among the general population (17). Our findings (12.7%), however, are more comparable to a lifestyle survey among 1,770 Italian cardiologists (12.4%), which in both cases is relevant and somehow balances inadequate physical activity and exposure to stress (18).

Figure 4. Time periods in which study participants completed various diagnostic tests



**women only; **men only.*

Although most Slovenian managers would like to stay physically active, this is mostly sporadic or limited to sport and recreational events. The latter is also driven with competitiveness; yet, the results usually are below expectations. Importantly, balanced lifestyle with daily physical activity, healthy diet, and relaxation is the key to success and satisfaction with daily work (19). Our findings are in line with previous reports, as high intensity exercise was sporadic, and moderate intensity exercise was not meeting the quantity goal for health benefits. Moreover, overweight or obesity was present in more than half of our respondents, as was dissatisfaction with body weight.

European Survey of Enterprises on New and Emerging Risks (ESENER) showed that workplace related stress often induces issues for managers in healthcare and social sector (3). Jericek et al. reported an association between stress and healthcare institution workplace specifics, including conflicts among co-workers, potential lack of skills and knowledge needed for patient care, and ever increasing expectations of patients and public (20). Similar is mirrored by our finding that as many as 93.6% of respondents reported workplace-related stress that is difficult to manage. It is therefore not surprising that stress (followed by smoking and lack of physical activity) was identified as the most important risk factor contributing to poor health and high mortality among Slovenian adult population. To tackle this burden, Martincic emphasizes risk management strategies as well as communication, management and coordination skills, along with teamwork and regular assessment of organisational aspects (21). Top managers need to recognize safety and health aspects over economical issues, which follows a general strategy in an institution or enterprise (22).

Healthcare workers need to be aware of their role model in promotion of healthy lifestyles, which also provides additional credibility in daily professional routine (23,24). It is well-known that healthcare workers, who personally follow healthy lifestyle measures, are more in favour of health promotion and disease prevention activities in their clinical practice (18,25-27). In a survey that included 496 Swiss doctors, Cornuz and colleagues reported that personal lifestyle (more than three units of alcohol daily, sedentary lifestyle, and poor awareness about arterial hypertension) predicted a lower chance of alcohol and smoking advice delivered to the patients (23). Howe and colleagues studied personal health behaviours of 183 American hospital doctors in association with patient-related lifestyle counselling and reported an association between regular physical activity (>150min/week) and patient advice to exercise regularly and follow healthy diet (24). Similar to this, healthcare institution managers have a similar role model and should give personal examples to foster recognition of preventive activities and health promotion among co-workers and patients. Therefore, healthcare institutions have a certain degree of societal responsibility against patients and caregivers, employees, and local community. Thus, they should act accordingly (5,6). According to reports of International Network of Health Promoting Hospitals and Health Services, hospital management attitudes are crucial for clinical health promotion among patients, implementation of health promotion activities for employees and quality control (5-8).

We corroborated a previous report by Stergar and Urdih-Lazar (9) for self-rated health, which predominantly was good or better; this is in contrast with results among the general population, where the proportion with good or better self-rated health is halved (14,28), whereas there is little difference in attitudes towards health (14). Exact reasons are unknown but could be associated with better socioeconomic status and possibilities to implement healthy lifestyles.

Chronic diseases like hypercholesterolemia, spinal disease, and arterial hypertension were the most prevalent among our respondents. Most of these conditions would require management; yet, the extent of pharmacological therapy was not meeting the epidemiological situation. It may well be that non-pharmacological measures were in place or patients did not meet the risk profile for treatment initiation. It could also be due to personal preferences or discontinuation of therapy. Whilst most have had their risk factors assessed within last year, more than half of individuals had no appointment at their general practitioner or specialist.

Managers usually attend their regular health check-ups (every 3-4 years) and in-between these visits, they prefer to have specialist assessment (e.g. cardiologist, sonography, etc.) but rarely make an appointment with their general practitioner (19). Average age likely influenced screening for breast cancer, as almost two-thirds had no mammography (available for women between 50-69 years), and cervical carcinoma, with less than half having an exam within last year (29,30). Screening for occult gastrointestinal bleeding, colonoscopy and measurement of prostate specific antigen was less common; whilst, this could be a procedure related for colonoscopy, no evident reason for the others was present.

Our results need to be interpreted in the context of available information and some limitations. Cross-sectional studies in the field are lacking thus our findings contribute to present knowledge and action strategies. It also identifies issues that need more investigation to gain additional insight into health-related behaviours, health status, and use of healthcare services among this population. Although sample size can be regarded as modest, the response rate in relative terms was considerable. Due to study design, selection and recall bias as well as socially desirable answers are possible, particularly for behavioural risk factors. Finally, it would be more appropriate to compare our findings to subjects of similar educational level and socioeconomic status rather than to general population, but there are no available studies in the Slovenian population.

Conclusion

Managers of Slovenian hospitals and institutes of public health tend to keep a healthy diet, drink alcohol with moderation and rarely smoke. Nonetheless, more than half were either overweight or obese, most did not meet physical activity levels for a good health and reported significant exposure to stress, primarily due to workplace and poor relations with co-workers. Hypercholesterolemia, spinal disease and arterial hypertension were the most commonly reported diseases, but not all were treated. Risk factor assessment but not actual visits within 12 months were reported for most of respondents.

Our results suggest there are some burning issues among Slovenian healthcare institution managers that would need to be addressed. Generally, healthy lifestyle should be promoted, with particular emphasis on stress management, the most prevalent and important workplace-related risk factor. With individual awareness and positive attitudes towards personal health, community activities and interventions get more feasible, with potential implications for community risk and health profile.

Acknowledgement

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ORIGINAL RESEARCH

Sex-differences in socioeconomic status and health-seeking behaviour among tuberculosis patients in transitional Albania in 2012-2013

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Abstract

Aim: There is little scientific evidence about the main determinants of sex discrepancies in tuberculosis rates in Albania. The aim of this study was to assess the sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among tuberculosis patients in Albania, a transitional country in the Western Balkans.

Methods: Our analysis involved all the new cases of pulmonary tuberculosis diagnosed in Albania during the period June 2012 – June 2013 (N=197; 69% males; overall mean age: 44±19 years). The recording and reporting system of tuberculosis cases was performed according to the WHO and EuroTB Surveillance guidelines. Information on socioeconomic characteristics of the patients, knowledge and attitudes about tuberculosis and access to health care was also collected. Logistic regression was used to assess the correlates of sex-differences among tuberculosis patients.

Results: In multivariable-adjusted models, female sex was positively related to unemployment (OR=3.7, 95%CI=1.8-7.7), bad living conditions (OR=3.0, 95%CI=1.4-6.5), a longer distance to health care facility (OR=3.0, 95%CI=1.4-6.3), a lower level of knowledge about tuberculosis (OR=3.1, 95%CI=1.3-7.1) and a higher level of stigma against tuberculosis (OR=3.6, 95%CI=1.6-7.9).

Conclusion: Our study informs about selected correlates of sex-differences in tuberculosis rates in post-communist Albania. Future studies should more vigorously explore determinants of sex-differences in tuberculosis rates in countries of the Western Balkans.

Keywords: access to health care, Albania, case detection rate, health seeking behaviour, pulmonary tuberculosis, sex-differences, socioeconomic characteristics.

Conflicts of interest: None.

Introduction

To date, the information about determinants of sex-differences in tuberculosis occurrence is scant (1,2), notwithstanding the available evidence suggesting that, at a global level, tuberculosis affects men more frequently than women (3). In any case, tuberculosis remains a crucial public health issue at a global scale which, regardless of sex, affects mostly the disadvantaged young population subgroups (4,5). Hence, only for the year 2012, there were reported 8.6 million new tuberculosis cases and 1.3 million tuberculosis deaths (6).

For the European region, the tuberculosis case notification rate in 2012 was substantially higher than the global average notification rates (7). However, the relatively higher case-notification rate in the European region on the whole does not necessarily apply for the former communist countries of the Western Balkans including Albania and Kosovo. Among all countries of the Western Balkans, Kosovo exhibits the highest incidence rate of tuberculosis (8,9). It should be noted that in both Albania and Kosovo, the tuberculosis notification rates resemble the respective incidence rates (8,9). Furthermore, both Albania and Kosovo have a low prevalence of HIV infection (8,9).

However, the information about the sex-differences of tuberculosis rates in Albania is scarce. After the breakdown of the communist regime in 1990, Albania undertook a difficult journey from a rigid communist regime towards an open society (10,11). Nevertheless, the transition towards a democratic regime was associated with considerable socio-economic changes coupled with huge internal and external migration (12), which are believed to affect also the case-notification rates of tuberculosis. Yet, there are no recent scientific reports informing about the magnitude and determinants of tuberculosis in Albania.

In this context, the aim of our study was to assess the sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among male and female tuberculosis patients in Albania, a transitional country in the Western Balkans with a low prevalence of HIV/AIDS.

Methods

Design and study population

A cross-sectional study was conducted including all new pulmonary tuberculosis patients diagnosed in Albania from June 2012 to June 2013. During this time period, overall, there were recorded 197 new tuberculosis patients in Albania (69% males and 31% females; overall mean age: 43.84±19.2 years).

Data collection

All the recorded tuberculosis data from registers of the Tuberculosis Program in Albania were used for this analysis. The recording and reporting system was performed according to the WHO and EuroTB Surveillance guidelines (13).

All tuberculosis patients underwent a structured interview inquiring about factors related to access to health care, health seeking behavior and demographic and socioeconomic characteristics.

Information about access to health care and health seeking behaviour included data on the distance to health care facility (dichotomized into: ≤10 km vs. >10 km), knowledge about tuberculosis (dichotomized into: yes vs. no) and stigma against tuberculosis (yes vs. no).

Demographic and socioeconomic characteristics included age (dichotomized into: ≤45 vs. >45 years), gender (males vs. females), place of residence (urban areas vs. rural areas), employment status (dichotomized into: unemployed vs. employed/students/retired), educational attainment (dichotomized into: 0-8 years of formal schooling, vs. ≥9 years of formal schooling) and living conditions (dichotomized into: good/average vs. bad).

Statistical analysis

Chi-square test was used to compare the distribution of socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among male and female tuberculosis patients.

Binary logistic regression was used to assess sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among tuberculosis patients. Initially, crude (unadjusted) odds ratios (ORs), their respective 95% confidence intervals (95%CIs) and p-values were calculated. Subsequently, multivariable-adjusted ORs, their respective 95%CIs and p-values were calculated. Hosmer-Lemeshow test was used to assess the goodness of fit of the logistic regression models. In all cases, a p-value of ≤0.05 was considered statistically significant.

Statistical Package for Social Sciences (SPSS, version 15.0) was used for all the statistical analysis.

Results

Table 1 presents the distribution of socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among tuberculosis patients in Albania by sex. Males were somehow younger than females, a finding which was not statistically significant (P=0.09). There was no sex-difference in the proportions of urban/rural residents. Conversely, the unemployment rate was considerably higher among females (59% vs. 29% in males, P<0.001). Similarly, the proportion of low-educated (0-8 years of formal schooling) and individuals with bad living conditions was higher among females than in males (77% vs. 60%, P=0.02 and 46% vs. 24%, P=0.02, respectively). A significantly higher proportion of females reported a longer distance to health care facility (>10 km) compared with their male counterparts (64% vs. 40%, respectively, P=0.002). The knowledge about tuberculosis was lower among females (66% vs. 81% in males, P=0.03), whereas the level of stigma against tuberculosis was considerably higher (71% vs. 49%, respectively, P=0.008) [Table 1].

Table 1. Distribution of socioeconomic characteristics, knowledge and attitudes about tuberculosis, and access to health care among tuberculosis patients in Albania by sex

Variable	Females (N=61)	Males (N=136)	P[†]
Age:			
≤45 years	27 (44.3)[*]	79 (58.1)	0.089
>45 years	34 (55.7)	57 (41.9)	
Place of residence:			
Urban areas	24 (39.3)	64 (47.1)	0.354
Rural areas	37 (60.7)	72 (52.9)	
Employment status:			
Unemployed	36 (59.0)	40 (29.4)	<0.001
Employed/students/retired	25 (41.0)	96 (70.6)	
Educational level:			
0-8 years	47 (77.0)	81 (59.6)	0.023
≥9 years	14 (23.0)	55 (40.4)	
Living conditions:			
Good/average	33 (54.1)	104 (76.5)	0.002
Bad	28 (45.9)	32 (23.5)	
Distance to health facility:			
≤10 km	22 (36.1)	82 (60.3)	0.002
>10 km	39 (63.9)	54 (39.7)	
Tuberculosis knowledge:			

Yes	40 (65.6)	110 (80.9)	0.029
No	21 (34.4)	26 (19.1)	
Stigma:			
No	18 (29.5)	69 (50.7)	0.008
Yes	43 (70.5)	67 (49.3)	

[*] Absolute numbers and their respective column percentages (in parentheses).

[†] P-values from the chi-square test.

In crude (unadjusted) logistic regression models, there was no significant sex-difference in the age or place of residence of tuberculosis patients (Table 2). On the other hand, female gender was positively and significantly associated with unemployment (OR=3.5, 95%CI=1.8-6.5), a lower educational attainment (OR=2.3, 95%CI=1.2-4.5), bad living conditions (OR=2.8, 95%CI=1.5-5.2), a longer distance to health care facility (OR=2.7, 95%CI=1.4-5.0), a lower level of knowledge about tuberculosis (OR=2.2, 95%CI=1.1-4.4) and a higher level of stigma against tuberculosis (OR=2.5, 95%CI=1.3-4.7) [Table 2].

Table 2. Sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis, and access to health care among tuberculosis patients in Albania; crude/unadjusted odds ratios from binary logistic regression

Variable	OR[*]	95%CI[*]	P[*]
Age:			
≤45 years	1.00	reference	0.073
>45 years	1.75	0.95-3.21	
Place of residence:			
Urban areas	1.00	reference	0.315
Rural areas	1.37	0.74-2.53	
Employment status:			
Employed/students/retired	1.00	reference	<0.001
Unemployed	3.46	1.84-6.45	
Educational level:			
≥9 years	1.00	reference	0.019
0-8 years	2.28	1.15-4.54	
Living conditions:			
Good/average	1.00	reference	0.002
Bad	2.76	1.45-5.23	
Distance to health facility:			
≤10 km	1.00	reference	0.002
>10 km	2.69	1.44-5.03	
Tuberculosis knowledge:			
Yes	1.00	reference	0.021
No	2.22	1.13-4.38	
Stigma:			
No	1.00	reference	0.006
Yes	2.46	1.29-4.69	

[*] Crude/unadjusted odds ratios (OR: female vs. male), 95% confidence intervals (95%CI) and p-values from binary logistic regression.

Upon simultaneous adjustment for all covariates (Table 3), female sex was positively related to unemployment (OR=3.7, 95%CI=1.8-7.7), bad living conditions (OR=3.0, 95%CI=1.4-6.5), a longer distance to health care facility (OR=3.0, 95%CI=1.4-6.3), a lower level of knowledge about tuberculosis (OR=3.1, 95%CI=1.3-7.1) and a higher level of stigma against tuberculosis (OR=3.6, 95%CI=1.6-7.9).

Table 3. Sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis, and access to health care among tuberculosis patients in Albania; multivariable-adjusted odds ratios from binary logistic regression

Variable	OR*	95%CI*	P*
Age:			
≤45 years	1.00	reference	0.102
>45 years	1.87	0.88-3.98	
Place of residence:			
Urban areas	1.00	reference	0.645
Rural areas	1.19	0.57-2.50	
Employment status:			
Employed/students/retired	1.00	reference	0.001
Unemployed	3.68	1.78-7.65	
Educational level:			
≥9 years	1.00	reference	0.230
0-8 years	1.64	0.73-3.65	
Living conditions:			
Good/average	1.00	reference	0.006
Bad	2.97	1.36-6.48	
Distance to health facility:			
≤10 km	1.00	reference	0.004
>10 km	3.00	1.42-6.34	
Tuberculosis knowledge:			
Yes	1.00	reference	0.009
No	3.06	1.33-7.08	
Stigma:			
No	1.00	reference	0.002
Yes	3.57	1.62-7.88	

* Multivariable-adjusted odds ratios (OR: female vs. male), 95% confidence intervals (95%CI) and p-values from binary logistic regression.

Discussion

Main findings of our study include a strong positive association of female gender with a lower socioeconomic status among tuberculosis patients diagnosed in Albania during mid-2012 to mid-2013. In particular, unemployment and poor living conditions were considerably more prevalent among female patients with tuberculosis compared with their male counterparts. Furthermore, a lower access to health care and scarce personal resources for a proper and effective health seeking behaviour were substantially more prevalent among female tuberculosis patients.

The finding of a positive association of female sex with a lower socioeconomic status, a lower access to health care and a poor health seeking behaviour may point to a lower degree of case notification rate among females compared to males in Albania. Indeed, our finding pointing to a higher case notification rate of tuberculosis among males compared with the females is generally in line with the abundant global evidence on this matter (3-7). Nonetheless, despite the current evidence obtained in various countries and regions, it is not clear whether these sex-differences reflect a distinctive tuberculosis epidemiology (14), or an under-notification driven by socio-cultural characteristics and/or access to health care services or health seeking behavior (15,16).

Regardless of sex, it has been shown that there is a high possibility of under-notification of tuberculosis cases in low-and-middle income countries due to their limited resources coupled with a weak tuberculosis surveillance system (17,18). In this context, the under-notification may affect mostly females, which are assumed to be more vulnerable in terms of their socioeconomic conditions and health seeking behaviour. Thus, biological explanations aside, it has been argued that there is a link between female under-notification rates in the context of specific cultural factors which play an important role in developing and transitional societies (19), such as the case of Albania and perhaps other former communist countries in the Western Balkans. In any case, given the lack of sufficient information, the World Health Organization stimulates further vigorous research related to determinants of sex-differences in case notification rates of tuberculosis (2).

On the other hand, in our study, there was no evidence of sex-differences with regard to the place of residence (urban areas vs. rural areas) of tuberculosis patients.

Our analysis may have several limitations. Notwithstanding the fact that we included all new patients with tuberculosis diagnosed during the period June 2012 – June 2013, the possibility of under-recording of tuberculosis cases may affect differentially males and females in Albania. Furthermore, it is reasonable to assume a differential recording of new cases based on the demographic and socioeconomic profiles of the patients with tuberculosis. Also, measurement of socioeconomic characteristics and health seeking behaviour – which was based on interview – may have affected, to some degree, our findings. Therefore, future studies in Albania should more vigorously assess determinants of sex-differences in tuberculosis rates in the overall population.

In conclusion, our study provides useful evidence about selected correlates of sex-differences among tuberculosis patients in Albania. Health care providers, policymakers and decision-makers in Albania should be aware of the current sex-differences in socioeconomic characteristics, access to health care and health seeking behaviour among tuberculosis patients in this post-communist society. Future studies in Albania and other transitional countries of the Western Balkans should further explore the main determinants of sex-differences in tuberculosis rates.

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SHORT REPORT

Shaping and authorising a public health profession

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Abstract

The aim of this short report is to stimulate a discussion on the state of a public health profession in Europe and actions which need to be taken to authorise public health professionals based on their competencies. While regulated professions such as medical doctors, nurses, lawyers, and architects can enjoy the benefits of the 2005/36/EC Directive amended by 2013/55/EU Directive on the recognition of professional qualifications, public health professionals are left out from these influential (elite) professions.

Firstly, we use the profession traits theory as a framework in arguing whether public health can be a legitimate profession in itself; secondly, we explain who public health professionals are and what usually is required for shaping the public health profession; and thirdly, we attempt to sketch the road to the authorisation or licensing of public health professionals. Finally, we propose some recommendations.

Keywords: profession, professionalization, public health, recognition of professional qualifications.

Introduction

There are many professionals within the European Union (EU) that are still waiting for the recognition of their qualifications. Contrary to regulated professions such as doctors, nurses, midwives, pharmacists and architects, the public health (PH) profession being so multidisciplinary and system-dependent is still not clearly defined in the European states, which hinders professional mobility, rights to an automatic recognition and integration of public health professionals in the single market. The survey carried out by The Association of the Schools of Public Health in the European Region (ASPHER) identified a profound need to develop clear-cut professional qualification models which would allow for the certification and licensing of the profession (1).

The aim of this short communication is to stimulate debate on the state of a public health profession in Europe and measures and actions which need to be taken to authorise public health professionals based on their competencies.

The EU Directives

The EU introduced the Directive 2005/36/EC (2) and adopted Directive 2013/55/EU (3) on the modernisation of Directive 2005/36/EC on the recognition of professional qualifications on the 20th of November 2013. This document was an attempt to provide a basic legislative framework of the recognition of qualifications. However, there are still many issues left unresolved by the directive. The directive 2005/36/EC was formulated to facilitate the mobility of professionals within the EU (4). Depending on the national legislation and the profession in question, the document provides three different legal approaches to the recognition of a qualification. Foster (2012) explained that the automatic recognition is the first possible procedure that is restricted to a limited number of regulated professions (5). In this case, the host country should recognize automatically the qualification. A second approach is the mutual recognition of qualification that is meant for the recognition of a "general system" profession. This procedure works on a case-by-case basis. In general, it establishes that an individual should undergo compensatory measures only when the education or the minimum required years of practice diverge drastically from the receiving country's regulation. Finally, the third approach is for individuals who establish themselves in another Member State (MS) by working or providing a service on a temporary or occasional basis (5,6). The legislation might allow them to work without a prior recognition from the receiving country. However, article 7 of the directive is representing a restriction to this model (4). The article states that if there is a considerable difference between the individual's qualification and/or the training required by the MS in particular in a profession having public health or safety implications, a prior check or compensation measures may be maintained (7).

There are many controversial aspects within the directive: it is excluding a part of professionals from the mutual recognition by creating an inequality between the regulated and the unregulated professionals. Moreover, the insecurity for the recognition of the qualification of non-regulated professionals, especially in the health sector, will contribute to a decline in the number of applications for this field (8). Consequently, for a discipline such as public health there may be a shortage of labour force in the following years. These issues need to be solved to determine the needs of the job market.

However, fortunately, the Amendment to the 2005/36/EC Directive article 16(a) states that: *"The mobility of healthcare professionals should also be considered within the broader context of the European workforce for health"* (2), thus, leaving room for public health professionals to be considered. Therefore, there is a call for action directed to the public health community to shape the public health profession.

Shaping a profession

Different countries have their specific way of looking at public health, and shaping this profession is complex as public health is a very heterogeneous interdisciplinary composite with many different fields involved. However, the leadership should be provided by a highly trained *professional workforce*, specialised in the core areas of public health and *formally recognized* as a defined profession based on academic degrees. Our focus is not on the role of medical staff covering also public health aspects in their work environment, neither on non-health professions adding to the assurance and advancement of public health.

In order to discuss the shaping of a public health profession, a significant question relates to the extent that public health profession exhibits the characteristics of a profession. There are many sociological theories which describe the concept of a profession, the professional, and professionalization. While the precise content of these models varies, there are several characteristics that distinguish the professions from other occupations. The most commonly cited traits (9) include:

i. skills based on abstract knowledge which is certified/licensed and credentialed;
ii. provision of training and education, usually associated with a university;
iii. certification based on competency testing;
iv. formal organization, professional integration;
v. adherence to a code of conduct;
vi. altruistic service.

Firstly, we will use these traits as a framework in arguing whether public health can be a legitimate profession in itself; secondly, we will explain who public health professionals are and what usually is required for shaping a public health profession; and thirdly, we will attempt to sketch the road to the authorisation or licensing of PH professionals. Finally, we will propose some recommendations and stimulate the debate with open questions.

Public health as a profession

Applying the trait framework to a public health profession, one can immediately observe that the first three characteristics are fulfilled. Although public health is a multidisciplinary field, it encompasses abstract knowledge which can be reflected in public health competencies (ASPHER) when it relates to science, and in the Essential Public Health Operations (EPHO) when it relates to the art. Both can serve as a strong base for licensing and certification of educational and practice qualifications. Public health education is provided by higher educational establishments in the form of Bachelor and Master programmes with specialisation in public health, or a PhD in public health (referring to the three cycles of the Bologna system). Public health programmes are in the majority of cases competency-based and, if not, their reform has been encouraged by the ASPHER Competency Project Initiative (10,11). Concerning the formal organisation and professional integration, contrary to what we observe in regulated professions such as medical doctors, nurses, midwives, lawyers, and architects, public health professionals do not have a specific organisation or chamber which would safeguard their rights and privileges. With respect to the specific code of conduct which would apply to the whole profession, we do not have many examples to follow (12,13). Finally, considering an altruistic service as something what distinguishes public health professionals from other professions, we may state that the whole ethos of public health is based on altruistic principles of serving and protecting for the benefit of public and individual health.

Based on this short inventory we are able to prove that public health can be considered a profession if we put some effort in formalising and strengthening its professional integration.

Who are public health professionals?

Unlike the medical profession, defining public health professionals is more elusive. For example, Beaglehole and Dal Poz define the public health workforce as *"a diverse workforce whose prime responsibility is the provision of core public health activities, irrespective of their organizational base"* (14), highlighting that public health workforce can be located both inside and outside the health sector (15). Whitfield provides a theoretical conceptualization of public health activities and the related workforce. According to this concept, the public health workforce can be divided into three groups: i) "public health specialists"; ii) "people indirectly involved in public health activities through their work"; and iii) "people who should be aware of public health implications in their professional life" (16).

Distinguishing between these three categories of the public health workforce emphasizes the multidisciplinary and diverse character of public health itself. Despite many differences among countries, public health professionals in Europe often are physicians and have a medical public health/social medicine specialization, although there has been a shift towards more multidisciplinary teams since the 1990s and 2000s, with Finland, Ireland and the United Kingdom among the first countries in Europe in which professionals with different backgrounds were educated in public health (14). However, the multi-professionalism of the future public health profession is not represented in many European countries.

For the purpose of this paper the public health workforce – whether actual or potential – consists of three main categories:

i. *Public health professionals* – professionals with sufficient public health competences at master level for public health services and/or doctor of philosophy (PhD) for public health research. A bachelor degree can be considered as an entrance level, leading to a master in public health (MPH)/PhD degree, independent of working in- or outside the health system, or: in- or outside the public health services.

ii. *Health professionals* – health staff with more restricted public health competences and functions in- or outside organised public health services; their main education would basically be a medical or other health-related programme with limited public health aspects – e.g., health promotion, or screening.

iii. *Other staff with job functions bearing on the population's health.* Examples would be teachers or policemen. We focus here on the first group, the public health professionals, which include:

    a. *General public health professionals* – individuals with a bachelor or master degree in public health. Thus, they can be younger persons with no previous professional experience. They hold the academic degree, but not necessarily a licence for a profession. The content of the education provided by the university programmes shapes *general public health professionals.* Needless to say, it should follow the ASPHER competency lists (10,11).

    b. *Public health specialists,* i.e. general public health professionals who have added special competences to their general public health education and training from the areas such as: epidemiology, management and administration, health promotion, environmental health, public health genomics, or global public health which go beyond a selected specific track covered during their MPH programme, or ideally accomplished a PhD.

What is usually required for shaping a profession?

Firstly, there are specific legal and regulatory steps which need to be taken in order for the profession to get a legitimate recognition. Therefore, a specific national public health legislation should be granted to national public health councils or their equivalents, giving them the regulatory authority to protect the public's health and including provisions on: a) public health positions, especially those related to leadership posts; b) second (MPH) and third (PhD) cycle academic degrees, and; c) an independent national public health chamber with the mandate to safeguard the right to enter and execute the profession, certify and license [including the mandatory minimum credits from accredited Continuing Education (CE)]. The support of WHO-INT is needed here to provide a model Public Health Law as well as the support of CE to allow for mutual recognition of academic degrees, certification, and licensing in order to enhance mobility. Formal professional certification is a national prerogative. Although some attempts have been made in some EU countries e.g. The UK Qualification Register (17), these are highly country-specific and do not necessarily fit the diverse PH systems in Europe.

Secondly, formalized CE programmes (including an official statement on required credits), accredited at the national level by either a separate administration or a professional chamber should be made available for public health professional development. Agency for public health education accreditation should provide the quality criteria for CE and offer to accredit the national accreditation procedures.

Thirdly, systematic development and adaptation of the existing public health competency models to meet the needs of continuing professional development, professional appraisal, and development of public health job profiles, should constitute the ongoing improvement process. This should be followed by the translation of the competency profiles to public health operations, thus, creating various competency-based job descriptions fitting possible EU public health qualification schemes.

Finally, the cooperation between all sectors of education, training, and the world of work is needed to improve sectoral identification and anticipation of skill and competence needs.

Potential conclusions and recommendations

Based on our analysis we see a potential in mobilizing the efforts of the public health professional community to build on the strengths and achievements of the profession so that it can join the elite of regulated professions. We strongly believe that no effort should be spared in identifying the possibilities in the EU regulatory documents and exerting influence on changing their content so that they are more inclusive in view of the Common European Market. Above all, we should make sure that the public health profession fulfils all the necessary criteria to be considered a regulated profession and is supported by a strong formal organization at the national and European level. Therefore, we recommend the following:

i. Strong lobbying of the professional public health community at the EU level to support the introduction of adequate legislation.
ii. Implementation of the Professional Qualification Directive with broader mention of the recognition of public health professional qualifications.
iii. Advocating for Public Health Laws to establish the requirements for leadership positions (see WHO database planned).
iv. Assuring that national qualifications are recognized EU-wide and beyond (European-wide recognition required for enhanced professional mobility).
v. Developing clear differentiating criteria related to academic (Bologna cycles) and professional certification and re-licensing based on continuous professional development credits.
vi. Provision of certification and licensing for all public health professionals.
vii. Acceptance of the national responsibility for certification and licensing.
viii. Advocating for the establishment of Professional Public Health Self-Government (Chamber) at the national level.

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SHORT REPORT

Control of public expenditure on drug products in Bulgaria – Policies and outcomes

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Abstract

Aim: The aim of this study was to assess the economic performance of the application of the policy for negotiating discounts on drug products and agreements on the controlled access of patients in Bulgaria.

Methods: The methodology involves comparison of the amounts of public spending on medicines in two periods – during the course of the analyzed drug policies (January 2007 – June 2009), and the period in which negotiations on the price of medicines and programs for the controlled access of the patients was discontinued (July 2009 – December 2012).

Results: In Bulgaria, the government did not apply methods for controlling public expenditure on medicines bargaining price concessions from manufacturers and implementing agreements on controlled access of patients after June 2009. This led to an annual increase in the expenditures on drug products for home treatment (on average, 17% for the period 2009-2012).

Conclusion: This trend in Bulgaria will continue in the future since expenditure control only through price control by means of a reference system and the positive list of medicines is ineffective. There is a need for implementation of combined drug policies in Bulgaria in the form of negotiations on rebates with manufacturers and agreements on controlled access of patients and reference pricing.

***Keywords**:* Bulgaria, drugs, negotiation, National Health Insurance Fund, prices.

Conflict of interest: none.

Introduction

The contemporary approaches to drug policy in a number of European Union (EU) countries include negotiating discounts and rebates between the health insurance funds and the pharmaceutical manufacturers, as well as agreements for risk sharing in order to reduce the impact of the new patented medicines on the public budget.

Negotiating some form of discount between the manufacturers and the funds has different forms and ways of administration in different countries and, in some cases, pharmacies give up part of their statutory surcharges (e.g. the Netherlands) (1). In other cases, they impose administrative requirements for discounts on the pharmaceutical manufacturers (Germany, Spain, Portugal) (2), whereas in further cases manufacturers recover part of the cost of the reimbursed medicines when the previously agreed annual limits are exceeded (France) (3).

Such policies of paying back are becoming more and more popular and are currently being applied in at least ten EU countries.

Until June 2009, the National Health Insurance Fund (NHIF) in Bulgaria negotiated discounts with manufacturers on the prices of patented medicines and administratively determined the conditions of pharmacies for their dispensing. For these products, pharmacists were not allowed to charge the statutory determined retail surcharge and received a minimum fixed fee for the dispensing of medicines. Subsequently, in June 2009, with the adoption of a Positive Drug List (PDL), the possibility of NHIF to negotiate prices and discounts on medicines were legally discontinued.

The agreements for sharing the financial risk and the controlled access of patients to treatment with proprietary medicinal products are also a tool for the management and control of public spending. The need for such agreements highlights the rapidly growing share of drug costs for the treatment of certain diseases such as cancer, viral infections, neurological diseases, or diabetes and the increasing concern of the governments about the relatively high level of health consumption of new drugs compared to the standard therapeutic alternatives.

In the EU countries, there exist several different schemes for financial risk sharing:

- Agreements of the type “price-quantity”. These are purely financial schemes that lead to recovery when there is an excess in the previously agreed schemes by the producers’ sales.
- Agreements of the type “controlled access for the patients”. They are based on an approach that the medicines are provided free-of-charge or at a lower price by the manufacturer for a limited period in order to facilitate financing (4).
- Agreements based on the results. They are based on the recovery of the costs, if a previously agreed upon level of therapeutic results is not reached, e.g. the desired improvement of health.

Ultimately, no matter what the specific approach will be, the agreements for risk sharing reduce the risk of overspending the budget of the public health insurance fund. They are particularly useful for restricting the use of drugs by those segments of the population which generate the least benefits (5).

In the Bulgarian health system, agreements for the controlled access of patients were applied until June 2009 in the form of health programs for expensive treatment of socially significant diseases such as diabetes, chronic renal failure, hepatitis, multiple sclerosis, schizophrenia, bipolar disorder, or Parkinson’s disease. Access to these health programs was granted for patients who met specific criteria for the disease and diagnostic indicators, confirmed by special medical commissions. These health programs for the controlled access of patients have been discontinued since June 2009 and the access was extended to all patients with these diagnoses.

As a modern political tool that limits the impact on public spending, especially for innovative drugs of uncertain benefit, the agreements for sharing the financial risk are an interesting and promising approach. At present, however, there is no systematic evaluation of their application and results achieved in Bulgaria.

In this context, the aim of the current study was to assess the economic results of the implementation of the policies for negotiating discounts and medical products and the agreements on the controlled access of patients in Bulgaria. The study questions included a comparative analysis of the cost of the expenses for drug products throughout two periods, in which different practices for their regulation were employed – in the first period there were employed policies of negotiating the prices, internal reference pricing and programs for regulated access to patients, while in the next period only policies for external and internal reference pricing were used. The tested hypothesis was that the complex policy of reference pricing, negotiating prices and programs for a controlled access contribute to the success of a more effective regulation of the drug products costs, in comparison to the separate employment of policies for external and internal reference pricing.

Methods

The methodology consisted of comparing the value of public spending on medicines in two periods – during the course of the analyzed drug policies (January 2007 – June 2009) (6) and the period when negotiating the price of medicines and the programs for the controlled access of patients was discontinued (July 2009 – December 2012) (7).

The official data for the expenses of NHIF for reimbursing the medicinal products were used for the current analysis. We compared the quantities and the value of the medicinal products, which have been completely reimbursed and were used for the treatment of multiple sclerosis, hepatitis, schizophrenia and diabetes. These expenses constitute 25% of the costs for the completely reimbursed medicinal products. At the beginning of the period under consideration (2007), medicines had patent protection and there were no registered generic products in the market. Up to 2009, public expenses of these medicinal products were controlled through a complex of measures which included agreements for sharing the financial risk and policies of price discounts.

Results

The public expenditure on NHIF medicines for the period of 2007-2012 are presented in Figure 1. The costs up to June 2009 are presented in two parts – partially reimbursed medicines and completely free medicines, which are controlled by negotiating discounts, an administrative reduction of the surplus charge of pharmacies and programs to control patient access to the expensive treatment of certain socially significant diseases. After June 2009, all the NHIF approaches employed to control costs were terminated, and the cost of public funds for medicines were operated only by the PDL, based on external and internal reference pricing.

The data analysis shows that during the period 2007-2009 (when discount policies and agreements on the controlled access were applied), the cost of medicines for three years increased from 282 million BGN to 325 million BGN, i.e. an increase of 15%. For a similar period (2010-2012), when the public spending was controlled only by external and internal reference pricing, the cost of medicines increased from 366 million BGN to 524 million BGN (up to 43%). Therefore, it is reasonable to conclude that the long-term results of drug policies on discounts and programs for the controlled access of patients are more effective in terms of public spending, than the independent application of a reference price system within the PDL.

Figure 1. Public expenditure on NHIF medicines for the period 2007-2012
(*Source: Statement of the cash execution of the NHIF budget*)

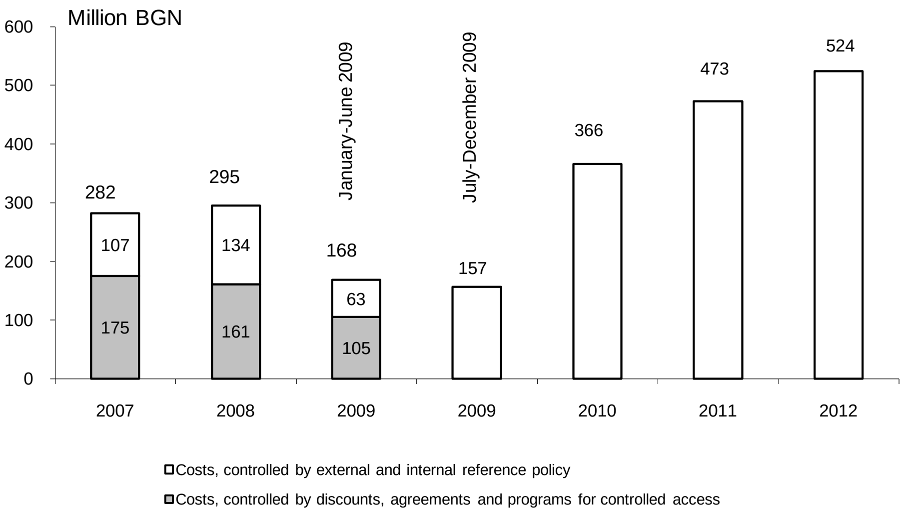

Table 1 displays the quantitative analysis of the most commonly used medicines for the treatment of multiple sclerosis, hepatitis, schizophrenia and diabetes, which in 2008 were dispensed under the programs for controlled access that were discontinued after June 2009.

After the termination of the agreements for controlled access, the reimbursed amounts of the NHIF drug products increased between 14% (Insulin human) and 157% (Peginterferon) by 2012 compared to 2008.

Table 1. The amount of annual sales during the period 2008-2012
(Source: IMS Health, 2008-2012)

Medicine	**2008 (number)**	**2009 (number)**	**2010 (number)**	**2011 (number)**	**2012 (number)**
Interferon β	12,277	15,863	19,364	21,175	25,741
Peginterferon	14,087	18,285	35,435	34,731	36,244
Olanzapine	62,650	70,145	64,002	71,958	105,744
Aripiprazole	24,224	26,799	35,265	39,147	41,429
Insulin human	4,527,237	4,783,584	4, 854, 414	5,082,538	5,166,258

Table 2 displays an analysis of the values that were reimbursed by the NHIF for the same products. Public spending on the examined medicinal products increased between 16% (Insulin human) and 118% (Peginterferon) by 2012. An exception is the reimbursed expense for Olanzapine. The main reason is the expiry of the patent protection and the registration of generic medicines.

Table 2. The value of annual sales during the period of 2008-2012
(*Source: IMS Health, 2008-2012*)

Medicine	**2008, BGN**	**2009, BGN**	**2010, BGN**	**2011, BGN**	**2012, BGN**
Interferon β	9,717,166	12,585,278	16,392,076	16,207,345	18,495,318
Peginterferon	5,571,752	6,563,072	12,485,396	12,293,382	12,166,795
Olanzapine	11,871,082	11,319,137	9,592,246	8,795,552	7,686,233
Aripiprazole	5,178,861	4,883,137	5,713,810	6,376,297	6,711,932
Insulin human	44,209,976	45,246,122	44,617,054	49,667,806	51,433,736

Discussion

The increased public spending after 2009 once again demonstrates that the combination of various drug policies like negotiating discounts with manufacturers, agreements for the controlled access of patients and reference pricing are much more effective for the management and control of costs, than the administration of external and internal reference pricing by a PDL. The complex approach is the only possibility for price control of the innovative medicinal products (Interferon, Peginterferon, Insulin, Aripiprazole), where there are no generic alternatives and the internal reference pricing approach cannot be applied. Moreover, the pharmaceutical companies have control over the external reference pricing to a large degree and prefer to register their innovative products first at the high price markets in the EU (8). In these situations, the small pharmaceutical markets, such as the Bulgarian market, are threatened by a delayed access to the contemporary drug therapies. There is a high probability that analogical cases would occur in all countries in Southeast Europe and it is recommended that complex drug policies are applied for the management of the public costs on medicinal products.

The general rationale of the integrated approach to the drug policy is to accelerate the patient access towards innovative medicines, while ensuring that the financial risks are shared on the basis of estimated or actual cost-effectiveness and the impact of the consumption of medicines on the public budget.

The decrease in the cost of the product Olanzapine by 35% in 2012 compared to 2008, confirms the effectiveness of the approach for generic substitution, which regulates public spending without compromising the therapeutic goals. By 2015, according to the data from IMS Health, over 60% of the patent-protected drugs as of 2012 will be available as generics (9,10). The expiration of patent protection will make a large segment of the market available for generic medicines, and this will create a huge potential for saving financial resources. In addition, generics are just as good for health as original drugs are (11).

Conclusion

After June 2009, the government of Bulgaria did not apply methods to control the public expenditure of drug products, such as negotiating price discounts from manufacturers and the implementation of agreements for the controlled access to patients. This led to an annual increase in the expenditure of NHIF for medicines for home treatment by an average of 17% for the period 2009-2012. This trend will continue in the future because the cost control only through price controls by the reference system and the PDL is ineffective. It is necessary to implement a combination of policies on medicines, like negotiating discounts with the manufacturers, agreements for the controlled access of patients and reference pricing (12,13).

The contemporary drug policies presume that there is an increase in the role of pharmaco-economic evaluation when making decisions for the reimbursement of the medicinal products and the management of public expenses (14). The countries of Southeast Europe are still beginners in this process, but the fast creation of academic structures for economic evaluation of the medicinal therapies, which help the decision making committees on reimbursement, will improve the future efficacy of the complex drug policies for control of public expenses on medicinal products (15).

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The United Nations millennium development and post-2015 sustainable development goals: Towards long-term social change and social stability
An Introduction

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Most Millennium Development Goals (MDGs) show considerable progress on a global scale, but advance is inequitable if one, for example, compares the improvement in health between Sub-Saharan Africa and Eastern Asia, or even other developing countries (1). Whereas health and its social determinants play a major role in the debate on the post 2015 Sustainable Development Goals (SDGs), another major issue is only marginally mentioned, the devastating impact of armed conflicts. Conflict and war produce specific vulnerable groups: women, children, the elderly, and the special risk groups of technologically and drug dependent patients (intensive care, dialysis, incubator, radiotherapy, and chemotherapy). Moreover, 90% of the victims in modern wars are civilians; always war causes mental health damage with long-term outcomes even in the next generation.

Although, for example, one of the latest documents (5-9 May 2014) of the United Nations (UN) Sustainable Development Knowledge Platform, the Working Document for the Eleventh Session of the Open Working Group on SDGs (2), devotes its last 16th focus area to peaceful and inclusive societies, typically that section deals only – important enough – with crime, violence, and exploitation especially of children and women. Similarly, in the 'Health We Want' report (1) security takes up a page (p. 35), but fig. 1 (p. 42) pictures the 16 commissions, conferences etc. before and after the turn of the century. The summarizing 10 principles and 6 new health goals (p. 54) do not refer to the social causes and the prevention of armed conflict at all. Also, the UN Economic and Social Council (ECOSOC) seem to concentrate on countries emerging from conflict (3,4) in contradiction to the mission statement on its homepage referring to prevention.

Armed conflicts cause more deaths and permanent invalidity than most diseases [in the 20th century averaging to 460.000 deaths per year (5)] and analyses show that the fragile states at the lowest Human Development Index (HDI) level contribute to most of the lack of achievement of the MDGs. The SDG debate has to be re-adjusted to the dominating problem of security in large parts of the world. In the joint statement of the UN Platform on Social Determinants of Health (6), declared as an informal document, one of the chapters deals with conflict and fragility but the solutions offered do not seem to be very realistic e.g. expecting that developing health and information systems are possible to a relevant degree in a situation of conflict, and implicitly could prevent armed conflicts; rather, peace and security are a precondition for developing stable and sustainable health systems. Hence, the third claim here, namely to strengthen the policy making functions, seems to be much more to the point. This request corresponds in a way to the results of the global survey of the World Federation of Public Health Associations on the experience of public health professionals from 71 countries with the MDGs (7-9), where the importance of "politics" was ranked highest in all continents, in particular by official spokespersons of public health associations.

The modern concept of public health carries a great potential for healthy and therefore less aggressive societies. Development of the health systems has to contribute to peace, since aggression, violence, and warfare are among the greatest risks for health and economic welfare (10). On the other hand, world military expenditure in 2013 totalled $1.75 trillion (11), more than enough to make a difference in people's health across the world.

Building on his book, *Transforming Medical Education for the 21st Century: Megatrends, Priorities and Change* (12), George Lueddeke, a global consultant in Higher and Medical Education, advances arguments along similar lines in a forthcoming publication, *Global Population Health and Well-Being in the 21st Century: Towards a New Worldview* (published by March 2015). The South Eastern European Journal of Public Health (SEEJPH) publishes in advance the chapter on the UN-MDGs and the ongoing debate on the post-2015 Sustainable Development Goals (SDGs).

In total, the book comprises nine chapters, which range from historical perspectives on public/population health to contemporary challenges, including those triggered by ‘modernity’, which might benefit from ‘fifth wave’ interventions and the need to consider a new worldview. The author reviews the collective impact that external drivers are having on public health education and offers specific suggestions for modernizing public health curricula and learning. The volume includes an Epilogue on ‘Global Health, Governance and Education’, developed over the past few years by a think tank of 35 senior practitioners from 27 nations. It emphasizes that the core focus of the post-2015 SDGs needs to go beyond ‘sustainable development’ and take its lead, as many others have advocated, from achieving *Global Justice - Peace, Security and Basic Human Rights*.

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REVIEW ARTICLE

Towards an integrative post-2015 sustainable development goal framework: Focusing on global justice – peace, security and basic human rights

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Abstract

Following the Millennium Summit of the United Nations in 2000, the adoption of the United Nations (UN) Millennium Declaration by 189 nations, including the eight Millennium Development Goals (MDGs), has been hailed as a unique achievement in international development. Although the MDGs have raised the profile of global health, particularly in low- and middle-income countries, underpinned by the urgent need to address poverty worldwide, progress has been uneven both between and within countries. With over one billion people, Africa is a case in point. Aside from children completing a full course in primary school and achieving gender equality in primary school, none of the twelve main targets set for SS Africa has been met. A key reason suggested for this lack of progress is that the MDGs fall far short in terms of addressing the broader concept of development encapsulated in the Millennium Declaration, which includes human rights, equity, democracy, and governance.

To strengthen the likelihood of realizing the post-2015 Sustainable Development Goals (SDGs), particularly with regard to “planet and population” health and well-being , UN and other decision-makers are urged to consider the adoption of an integrated SDG framework that is based on (i) a vision of global justice - underpinned by peace, security and basic human rights; (ii) the development of interdependent and interconnected strategies for each of the eleven thematic indicators identified in the UN document *The World We Want*; and (iii) the application of guiding principles to measure the impact of SDG strategies in terms of holism, equity, sustainability, ownership, and global obligation. While current discussions on the SDGs are making progress in a number of areas, the need for integration of these around a common global vision and purpose seems especially crucial to avoid MDG shortcomings.

Keywords: global justice, human rights, MDGs, peace, SDGs, security, sustainable development.

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"The adoption of the Millennium Declaration in 2000 by all United Nations Member States marked an historic moment, as world leaders committed to tackle extreme poverty in its many dimensions and create a better life for everyone" (1).

The eight Millennium Development Goals (MDGs) and indicators (2), *"arguably, the most politically important pact ever made for international development"*, (3) were adopted on a voluntary basis by 189 nations to *"free a major portion of humanity from the shackles of extreme poverty, hunger, illiteracy and disease"* (4), several recognizing fundamental human rights, such as health and education, to be achieved by 2015.

In the Foreword to the "Millennium Development Goals Report 2013" (5), Ban Ki-Moon, secretary-general of the United Nations (UN), asserts that *"[t]he Millennium Development Goals (MDGs) have been the most successful global anti-poverty push in history"*. He further adds: *"[t]here have been visible improvements in all health areas as well as primary education."*

Progress on the millennium development goals

According to WHO Director-General, Dr Margaret Chan, while *"[a]ll eight of the MDGs have consequences for health"*, three put health at front and centre – they concern child health (MDG 4), maternal health (MDG 5), and the control of HIV/AIDS, malaria, tuberculosis and other major communicable diseases (MDG 6)" (6).

MDG 1, "eradicating extreme poverty and hunger," is on course to being achieved and has "fallen to under half of its 1990 value" (3), but remains a very serious problem in Oceanian nations, according to World Bank estimates. Aside from "North Korea and Somalia," where "the poor are getting poorer," Matt Ridley in his article, 'Start spreading the good news on equality,' observes that global income inequality is "plunging downwards."(7).

From a MDG perspective, Professors Ulrich Laaser and Helmut Brand point out these advances cannot be attributed to MDG commitments per se (8). Their analysis shows that *"the goal of 21% living below the poverty line defined as 1.25 USD/day was within reach in 2005. However, this was calculated from a baseline set at 1990, i.e., a decade before the MDGs were declared. If one compares the progress between 1990 and 1999 of 11 percentage points to the progress between 1999 and 2005 of 6 percentage points, then it becomes apparent that the pace of development has been quite similar before and after the MDG commitment in the year 2000"* (8). In addition, the authors highlight "the largest chunk of progress is due to the over-achievement of China, not only halving but quartering its poorest population. The same argument can be made for malnutrition, according to the authors, standing at *"19.8% in the developing countries in 1990 coming down to 16.8 in 1995 and remaining stagnant at 15.5% in 2006. However, the sheer numbers of malnourished remain stable at 848 million in 1990 vs. 850 in 2008. In Sub-Saharan Africa, (SS Africa) the numbers even increased in the last period (2003–2008) from 211 to 231 million"* (9).

Reducing *"by half the proportion of people without sustainable "access to drinking water has been achieved"* (3), although the number of people without a *"safe drinking water source"* is still steadily increasing, and by mid-2014 there were close to 800,000 deaths from water-related diseases (10), more than 10 percent of those who do not have access to safe water.

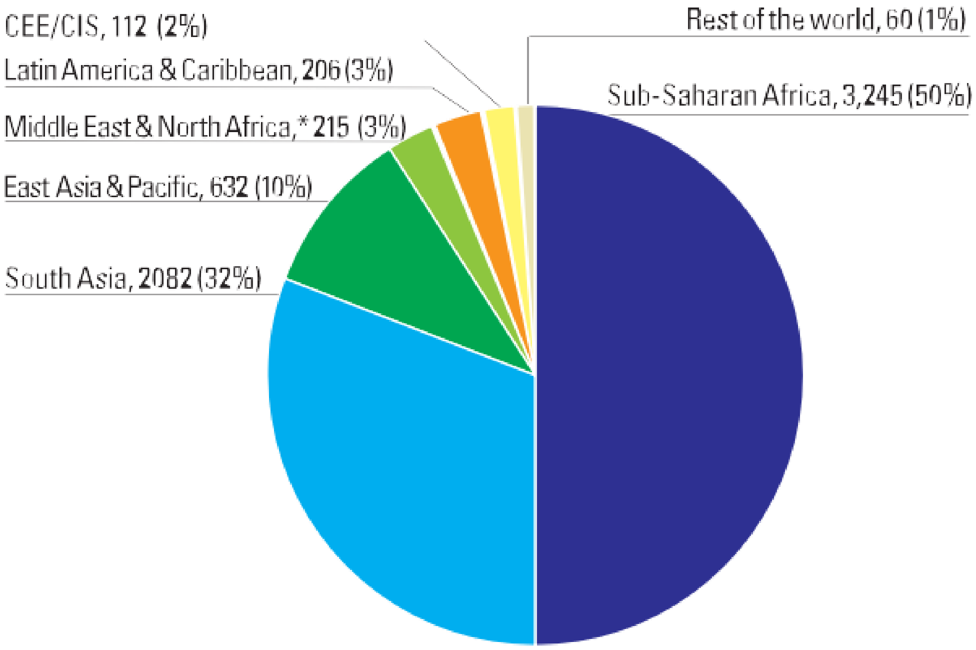
In terms of **MDG 2**, *"[s]ignificant steps towards achieving universal primary education have also been made with "[m]ore than 9 million children ... enrolled in primary education and more than 720, 000 primary school teachers have received training (2004-2009)"* (11). Progress has been slowest in the SS Africa as well as the Middle East and North Africa regions. However, according to the European Union 'Gender Equality' report, *"the heavy focus on enrolment rates has come at the cost of educational quality and retention disproportionately affecting girls"* (11). Furthermore, the report underlines that *"[s]econdary school completion is particularly important for gender equality and should command increasing attention."*

The aim of **MDG 3** is *"[t]o promote gender equality and empower women"*. And, while the targets and indicators within MDG 3 are important they were, according to the European Union study (11), "narrowly defined," and along with most other MDGs, *"[p]rogress has been uneven both between and within countries, and indicators were inadequate to capture the lagging behind of the most marginalised groups and those facing multiple discrimination."*

All SS African countries are lagging behind the MDGs, especially with regard to **MDG 4** "to reduce child mortality" and **MDG 5** on maternal mortality which calls for *"a reduction in the number of child deaths from 12 million in 1990 to fewer than 4 million by 2015"* (11). And, although *"[a]ll regions have made progress, with the highest reductions in Eastern Asia (69%), Northern Africa (66%) and Southern Asia (64%)"* (11) since the turn of the millennium progress toward MDG 4 and 5 is - *"well below the target to reduce the maternal mortality ratio by three-quarters by 2015"* and *"[o]n current trends, this is one of the targets least likely to be met by 2015"* (11).

As shown in Figure 1, *"significant disparities in infant mortality persist across regions. In sub-Saharan Africa, one in every 10 children born still dies before their fifth birthday, nearly 16 times the average rate in high-income countries"* (12). Faster progress in other regions has seen the burden of global under-five deaths shift increasingly to sub-Saharan Africa.

Figure 1: Number in thousands and percent (of global total) of under-five deaths by region 2012 (12)



The approach taken by the Partnership for Maternal, Newborn and Child Health (PMNCH) may hold important lessons for other MDGs (13). The PMNCH's main aim is to enable *"partners to share strategies, align objectives and resources, and agree on interventions to achieve more together than they would be able to achieve individually"*. Partners who have joined from various organizations, including those from *"the reproductive, maternal, newborn and child health (RMNCH) communities"* to form *"an alliance of more than 500 members, across seven constituencies: academic, research and teaching institutions; donors and foundations; health-care professionals; multilateral agencies; non-governmental organizations; partner countries; and the private sector"*.

Their evidence-based approach made clear the urgency of their work as studies revealed inter alia that *"[n]early nine million children under the age of five die every year, with "[a]round 70% of these early child deaths...due to conditions that could be prevented or treated with access to simple, affordable interventions"*. Alarmingly, *"[o]ver one third of all child deaths are linked to malnutrition"* and *"[c]hildren in developing countries are ten times more likely to die before the age of five than children in developed countries"*.

Developed within the framework for the 'Every Woman, Every Child initiative'(14), their concerted action has been successful and led to the 'Every Newborn Action Plan', which was endorsed by the 194 member-states at the 67th World Health Assembly in 2014. The Plan now paves *"the way for national implementation and monitoring of key strategic actions to improve the health and well-being of newborns and their mothers around the world"* (15). Translating vision into reality includes establishing "effective quality improvement systems," "competency-based curricula," "regulatory frameworks for midwifery and other health care personnel" and "multidisciplinary teams" (15).

MDG 6 focuses on combatting "HIV/AIDS, malaria and other diseases". Michel Sidibé, UNAIDS Executive Director, in his Foreword to the "UNAIDS report on the global AIDS epidemic 2013" (16), reflects that *"[o]ver the years, the gloom and disappointments chronicled in the early editions of the UNAIDS have given way to more promising tidings, including historic declines in AIDS-related deaths and new HIV infections and the mobilisation of unprecedented financing for HIV-related activities in low- and middle-income countries"*.

In his view much has been achieved since "the dawn of this century" when there was "a lack of critical HIV treatment and prevention tools" which "often hindered efforts to respond effectively to the epidemic". Today, he posits *"we have the tools we need to lay the groundwork to end the AIDS epidemic"*. Achievements such as "the sharp reductions in the number of children newly infected with HIV" and "life-saving antiretroviral therapy" to the synergistic efforts of diverse can be traced to "stakeholders – the leadership and commitment of national governments, the solidarity of the international community, innovation by programme implementers, the historic advances achieved by the scientific research community and the passionate engagement of civil society, most notably people living with HIV themselves". As with Partnership (PMNCH) for Maternal, Newborn and Child Health initiative (13), an important element of progressing the MDGs/SDGs lies with forming committed and workable alliances which have a common cause.

While acknowledging the significant progress that has been made toward new HIV infections, zero discrimination and zero AIDS-related deaths, he is concerned that *"[i]n several countries that have experienced significant declines in new HIV infections, disturbing signs have emerged of increases in sexual risk behaviours among people"*.

This ongoing uneasiness was highlighted at the Prince Mahidol Award Conference in 2014 in Thailand with the overall theme, *Transformative Learning for Health Equity* (17). At this event Dr. Anthony Fauci, director of the US Institute of Allergy and Infectious Diseases, outlined the challenges remaining in ending the HIV/AIDS pandemic, citing that in 2012 there were over *"70 million total HIV infections; 36 million total aids deaths; 35.5 million people living with AIDS"* killing 1.6 million in 2012 alone; and 2.3 million new HIV infections.

The intervention model adopted by the Institute places reliance on treatment and prevention with basic and clinical research given highest priority, especially regarding antiretroviral drugs, with 12.7 million people receiving these in 2012 compared to about 200,00 in 2002. And, as mentioned, while treatment is having good results in some areas, preventive measures are faring less well as fewer "than 10 percent of people in the world who are at risk of HIV infection are reached with prevention services." This low number is disappointing especially after "the global approach to HIV prevention" in the last three decades *"has moved from a fragmented one, initiated by different communities affected by HIV, to a unified approach led by international and national organisations and governments"* (18).

Two conclusions that may be drawn from these less-than-satisfactory statistics are, first, that *"[e]xpansion of the combination prevention approach is essential to avoid future HIV infections and for the health and well-being of people living with HIV"*. And, secondly, that prevention needs to be given much more priority especially in terms of resources for educational measures with a view to *"empowering communities who are affected by HIV to deliver the prevention techniques that work for them"*.

Progress with **MDG 7**, which seeks "to ensure environmental sustainability," is 'sluggish' in SS Africa, southern and western Asia, and Oceanian countries. As one example, *"[t]he proportion of people with sustainable access to safe drinking water increased from 76% to 89% between 1990 and 2011"* but *"accounts for just 63% in SS Africa"* (11). In addition, *"while access to sanitation improved from 49 % to over 60%, it remains well below the target of 75%"*, and has a major influence *"on women and girls, for example, in their ability to go to school and in the prevention of violence. Where water sources are still not available, women and girls do most of the collection"*. Moreover, alarmingly, high rates of deforestation hamper progress with regard to MDG 7. By mid-2014, losses in Forest over a six month period were 2,187,086 hectares and Land lost to soil erosion 2,944,409 hectares (10).

MDG 8 "relates to the need to develop a global partnership for Development" but *"is conspicuous by the absence of any indicators to monitor progress"* (11). This omission is highly significant as *"[t]rade agreements, including intellectual property rights, discussed in 4.3, directly impact on the cost and availability of pharmaceutical products and therefore the right to health"*.

A millennium development goal 'report card'

Table 1 shows average ratings of progress toward each of the eight MDG-2015 goals based on an informal survey involving twenty-four members of a Universitas 21 Health Sciences MDG workshop group meeting in Dublin, Ireland (19). The main focus of the UNMDG initiative, which comprises a network of 27 global research-intensive universities, is to facilitate incorporation of the UNMDGs (future SDGs) into health care curricula through the use of interprofessional case-study pedagogy. To this end, in the past few years the UNMDG team, drawn from members across the world, has conducted workshops in Dublin, Hong Kong, Nottingham, Melbourne, Lund, to name several locations. In addition, members have contributed to global MDG projects focusing on raising awareness about the UNMDGs and networking with similar groups. MDGs 3, 6, and 8 received the highest scores but are still well below acceptable levels. MDGs 1, 3, 4 seem to fare slightly better than MDGs 5 and 7.

Table 1. Universitas 21 Health Sciences MDG (compilation by the author GL)

MDG	Current	Reported as outstanding	Score-Card 1(best) – 5 (worst)
1) Eradicate poverty and hunger	1990-2004: poverty fell from almost a third to less than a fifth.	Africa poverty rise; 36 countries (90% of world's undernourished children); 1 out of 8 people remain hungry; 2.5 billion lack improved sanitation facilities – 1 billion practice open defecation, a major health/environmental hazard.	**3.1**
2)Achieve Universal Primary Education	Children in school in developing countries increased from 80%1991 to 88% in 2005.	Ca. 72 M children of primary school age (57% girls) not being educated as of 2005.	**3.1**
3) Promote Gender Equality	Tide turning slowly for women in the labour market.	Far more women than men - worldwide more than 60% - are contributing as unpaid family workers (World Bank Group Gender Action Plan)	**2.8**
4) Reduce Child Mortality	Some improvement in survival rates globally. Deaths of children less than 5 years of age fell from 12 million in 1991 to 6.9 million in 2005.	Accelerated improvements needed urgently in South Asia and sub-Saharan Africa; ca. 10M children <5 died in 2005; most deaths were from preventable causes (2014: 3.1M).	**3.1**
5) Improve Maternal Health	Most of about 500,000 women who die during pregnancy or childbirth every year live in South Asia and sub-Saharan Africa.	Probably one of the least likely MDGs to be met. Numerous causes of maternal deaths require a variety of health care interventions to be made widely accessible. Fewer than 50% of births attended in the African WHO Region.	**3.4**
6) Combat HIV/AIDS, Malaria, and Other Diseases	2012: over 70 million total HIV infections; 36 million total aids deaths; 35.5 million living with aids and killing 1.6 million; and 2.3 million new HIV infections.	AIDS is leading cause of death in sub-Saharan Africa (1.6M in 2007), cases of HIV/AIDS 36M. 300 to 500M cases of Malaria each year leading to more than 1 M deaths. Treatment meets only 30% of need.	**2.9**
7) Ensure Environmental Sustainability	Continuing losses of forests, species, and fish stocks across the globe.	World is already experiencing effects of climate change.	**3.4**
8) Increase Global Partnership for Development	Donors have to fulfil their pledges to match the current rate of health care program development.	Emphasis on partnerships e.g. The Global Partnership for Education and the World Bank.	**2.9**

Lessons learned from the MDG initiative

A key question the WHO Director-General raises in her introduction to the *World Health Report 2013*, 'Research for Universal Health Coverage'(5), is how lessons learned in other nations can help to reduce deaths everywhere. One answer appears to be making better use of community-based interventions, which according to "randomized controlled trials provide the most persuasive evidence for action in public health".

By 2010, findings from "18 such trials in Africa, Asia and Europe had shown that the participation of outreach workers, lay health workers, community midwives, community and village health workers, and trained birth attendants collectively reduced neonatal deaths by an average of 24%, stillbirths by 16% and perinatal mortality by 20%. Maternal illness was also reduced by a quarter. These trials clearly do not give all the answers – for instance, the benefits of these interventions in reducing maternal mortality, as distinct from morbidity, are still unclear – but they are a powerful argument for involving community health workers in the care of mothers and newborn.

Contributors to a study conducted by the University of London International Development Centre (LIDC) and published with *The Lancet*, 'The Millennium Development Goals: a cross-sectoral analysis and principles for goal setting after 2015' (3), identify difficulties with the MDGs in four areas: "conceptualisation, execution, ownership, and equity." In their view, the goals were *"too narrow and fragmented, leaving gaps in which other important development objectives are missing"*. Rather than focusing on the wider vision of the Millennium Declaration, the MDGs concern only "development and poverty eradication," not "peace, security and disarmament, and human rights". Moreover, investments have focused on vertical vs horizontal components (e.g. communicable diseases) with "variable effect on improving national health systems". Education targeted mostly primary education and MDG2 *"under-develops secondary and tertiary education where substantial improvements income and in health are the greatest"*, including the development of skilled workers. Fragmentation between such areas as "education, poverty reduction, health and gender" at national and local levels with *"responsibilities of different line ministries nationally, subnationally, and locally"* [means] *"that the potential for simultaneous actions in the same location, working with the same communities and households, is unlikely"*. The same separation holds true for environmental sustainability "with potentials for synergies across sectors."

Ownership has also been problematical as input from developing countries to the MDG framework *"was small...mixed and often weak"*, along with *"t]erritorial issues with leadership"*, with examples from communicable diseases (HIV/AIDS, TB, malaria), professional groups, the maternal and child health communities, and the pharmaceutical industry.

Another central issue for the MDGs is equity mainly because in their initial formulation the MDGs targeted poverty reduction and development goals aimed at poor countries rather than "global goals for all countries", usually associated with economic aspects (e.g. income, education) but also distribution.

The main shortcoming of the current MDG framework is that it is concerned *"with just adequate provision for some, ignoring the needs of those who are too hard to reach and not addressing the difficulties of inequality in societies that have deleterious consequences for everyone, not only the poorest people"*.

It is clear that the MDGs have had considerable impact by *"focusing resources and efforts on important development goals"*, and more generally *"in raising public and political interest in the development agenda, engaging for the first time a wide range of sectors and disciplines in a concerted effort"*.

However, in the light of difficulties with 'conceptualisation, execution, ownership, and equity', there appears to be a need for new MDG directions post-2015. The contributors to the LIDC MDG report concluded that *"future development goals should be framed by a vision of global justice at the present moment, when there are no appropriate institutions to deliver this vision"*. An important feature of their thinking is that *"it is important to focus on the choices that are actually on offer in a globally-inter-related world"*, including plurality of principles and procedures and *"permissibility of partial resolutions (i.e. that making some things a bit better than waiting for the best solutions"*.

The core of their thinking lies in the definition of 'development,' which they define *"as a dynamic process involving sustainable and equitable access to improving wellbeing"*. Drawing on Amartya Sen's work, *The Idea of Justice*,(20) in which he views wellbeing as a combination of the aspiration that "human lives can go much better", they agree that *"improvement can be brought about through a strengthening of human agency, a person's capability (vs capability deprivation) to pursue and realise things that he or she values and has reason to value"*, thereby linking *"wellbeing with the capability to make choices and act effectively with respect to, for example, health, education, nutrition, employment, security, participation, voice, consumption, and the claiming of rights"*.

Finally, the authors suggest that future developments of millennium goals should follow – and ideally be measured through a lens consisting of five guiding principles:

- *Holism*-avoiding "gaps in a development agenda and realising synergies between components, acknowledging that 'people's wellbeing and capabilities depend on human development, social development and environmental development".
- *Equity*-achieving "the development of a more equitable world, built on more equitable societies in which there are adequate flows of information, understanding, resources, training, and respect to enable diverse individuals to attain a decent quality of life".
- *Sustainability*- delivering "an outcome such as wellbeing, in terms of its capacity to persist, and to resist or recover from shocks that affects its productivity" [and] is "both viable in social and economic terms".
- *Ownership* – beginning "from a comprehensive conceptualisation of development and the core development principles proposed to govern both the specifications of development goals and the processes by which they are specified".
- *Global obligation* – arguing "for the importance of a position on global obligation that values human rights with respect to human, social, and environmental development", ensuring that 'concerns with wellbeing are not just limited to the obligations we have to citizens of our own country, but to individuals anywhere".

To a large extent, the LIDC report findings are echoed by Dr. Tewabech Bishaw, managing director of the Alliance for Brain-Gain & Innovative Development and secretary general of the African Federation of Public Health Associations (AFPHA) in Ethiopia.

In her keynote address at the 7th Public Health Association of South Africa (PHASA) conference (2011), entitled 'What public health actions are needed in African countries to confront health inequalities?' (21), she discusses the gaps that need to be addressed and shares her thoughts on public health actions *"that could contribute to redressing existing gaps and inequalities"*.

With dismay she observes that by 2011 *"out of the twelve MDG targets many of the countries in Africa have scored positively on only two – children completing a full course in primary school and achieving gender equality in primary school"*. Calling for urgent action, she also notes that *"Many of the health problems that developing countries in Africa are faced with are preventable. Emerging new communicable diseases and expansion of the old due to* *climate change has doubled the challenge. In addition, the increasing burden of non-communicable diseases alongside the communicable diseases is further burdening the health system making the situation more challenging. Many of the unnecessary and unjustified deaths especially death of newborns, children and mothers could be averted. Many young talents are wasted due to poverty, environmental degradation, ill health, under nutrition, lack of access to health services, clean water, hygienic living conditions, education and other essential services. Unemployment continues to weaken productive human resources with disabilities worsening the vicious circle of unproductively leading to perpetual poverty".*

Her recommendations reflect many of the guiding principles of the LIDC MDG report for redressing inequalities and other challenges, highlighting especially the importance of health being fundamentally "a human rights issue". In addition, she advocates the need for prioritizing policy, strategy and action based on accurate analysis of reliable health information and epidemiological data; engaging in collaborative partnerships and networks; promoting good governance and accountability; using national think tank groups; scaling up and sustaining critical intervention for sustainable health development; promoting and supporting problem solving research; and developing and using participatory monitoring and evaluation systems.

A theme that weaves through her keynote address is the need to listen to and learn from many voices in trying to address the deep-seated and pressing issues facing Africa.

Her determination is in keeping with Professor David Griggs, director of the Monash Sustainability Institute (MSI) in Australia (22). He cites Albert Einstein, who reportedly 'once said that if he had just one hour to find a solution on which his life depended, he would spend the first 55 minutes defining the problem', and 'once he knew the right question to ask, he could solve the problem in less than five minutes'. Professor Griggs emphasizes that *"today, humanity faces such a life-threatening problem: How are we to provide adequate nutrition and a decent quality of life to a global population that is set to surpass nine billion by 2050, without irreparably damaging our planetary life-support system?".* It seems highly unlikely that even Einstein's huge thinking capacity could easily resolve issues facing the planet and its people today.

This question is, of course, one of many that confront the post-2015 SDG deliberations. In retrospect, while there is wide variability among global regions with regard to meeting the MDGs, according to some, by and large, they *"did a good job in increasing aid spending and led to improved development policies, but left many of the bigger issues unresolved"* (23).

The main critique of the cross-sectorial analysis is that the MDG goals were "too narrow and fragmented," and that they concern only "development and poverty eradication not peace, security and human rights." Other weaknesses are that investments focused on vertical vs horizontal components (e.g., communicable diseases) and that education targeted primary education and not secondary and tertiary education.

The United Nations conference on sustainable development

The United Nations Conference on Sustainable Development (UNCSD) – also known as Rio 2012 and Rio-20) from 13-22 June 2012, with 192 attending nations and about 45,000 participants - made a commitment to the promotion of a sustainable future through Sustainable Development Goals (SDGs) (24).

Redefining the SDGs as *"development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends"* (25), a group of international scientists go further than focusing just on improving people's lives. They posit that *"[c]ountries must now link poverty eradication to protection of the*

atmosphere, oceans and land" and propose six Sustainable Development Goals (SDGs); including:
Goal 1: Thriving lives and livelihoods
Goal 2: Sustainable food security
Goal 3: Sustainable water security
Goal 4: Universal clean energy.
Goal 5: Healthy and productive ecosystems
Goal 6: Governance for sustainable societies

Taking into consideration the latter and other contributions, the mechanism to evolve new SDG goals has been through a two phase process by the UN General Assembly (UNGA) Open Working Group (OWG), co-chaired by Csaba Kőrösi, Hungary ambassador to the United Nations and Macharia Kamau, Kenya ambassador to the United Nations: the first phase focused on 'stocktaking' from March 2013 to February 2014, followed by phase two from February-September 2014 which concentrated on the development of the report for the 68th meeting of the UN General Assembly in September 2014 (26).

While the deliberations are on-going, the MDG interim report in June 2013 concluded that 'wide support' exists for a "single post-2015 UN development framework containing a single set of goals", which are universally applicable but adaptable to national priorities (27). In addition, the report proposes *"the need for a narrative that frames and motivates the SDGs, in particular to focus on poverty eradication as the overarching objective and central proposal of the Goals"*. However, while this focus remains crucial, it is vital to emphasise that sustainable global poverty reduction can only be accomplished in a world that makes 'peace, security and human rights' its core aspiration, as advocated by the contributors of *The* LIDC MDG cross-sectoral analysis (3).

These global ideals, so claim Lant Pritchett, and Charles Kenny, both senior fellows at Harvard's Center for Global Development, also recalling the *Lancet* report, could *"put into measurable form the high aspirations countries have for the well-being of their citizens"* (28), thereby offering *"a rationale for upper middle-income engagement with the post-2015 development agenda"*, and providing *"the rationale for a far broader engagement with development on the behalf of rich countries than attempting to kink progress through aid transfers"*.

'The world we want'

However, their proposal may need to remain a future possibility as the UN's top priorities through 'The World We Want' (29) and 'Beyond 2015' (30) lie with supporting 88 of the poorer countries "to convene national consultations on the post 2015 development agenda." Stakeholder inputs are requested *"on current and emerging challenges in respect to eleven defined substantive issues"*:

- Inequalities
- Health
- Population Dynamics
- Education
- Energy
- Water
- Environmental Sustainability
- Food Security and Nutrition
- Conflict and Fragility
- Growth and employment

- Governance

The overall aim is to build “a global, multi-stakeholder civil society movement for a legitimate post-2015 framework” (30,31). The national consultations – essentially a *“global conversation”* – are *“organized by UN Country Teams, under the leadership of the UN Resident Coordinator”*, and *“are working with a wide range of stakeholders including governments, civil society, the private sector, media, universities and think tanks”*. To date, over two million have contributed to the exercise, including considerable input through the MyWorld Survey (32). It is pleasing to note the interest taken by the younger generation as 50 percent of the voters to date have been between 16to 30 years of age. Their top priority is Education (254,505), followed by Healthcare (210,550), Job Opportunities (195,117), Honest and Responsive Government (189,311), Protection Against Crime and Violence (156,687), and Clean Water and Sanitation (152,434).

Conciliation Resources, a peace-building NGO, reminds us that *“War shatters lives. It creates poverty and wastes billions every year. The people living in the midst of the violence often have the greatest insight into its causes. Yet they are often excluded from efforts to find a resolution”* (33). In relation to the MDGs, Dr. Teresa Dumasy, working on policy change and learning in the field of peace building at Conciliation Resources, draws attention to the 2011 ‘World Development Report’ (34), which highlighted that *“no conflict-affected or fragile state has achieved a single MDG, nor are they expected to do so by 2015. Of the 42 countries at the bottom of UNDP’s Human Development Index, 29 are fragile states. Countries where people are feeling the socially debilitating effects of fragility and conflict have simply been left behind”*.

She further notes that *“[e]xperience shows that the targets set within the current MDGs have not proved sufficiently relevant to those countries grappling with the peace building and state building issues so central to their recovery”*. Moreover, she posits that the MDGs *“speak to the symptoms, rather than the drivers of conflict”* (33).

Referencing a statement by civil society organisations, ‘*Bringing peace into the post-2015 development framework: A joint statement by civil society organisations’* (35), she mentions key elements *“that address the fundamental notion of ‘fairness’, the absence of which can drive conflict and that should be included in any successor framework”*. These goals “are supported by more than 40 governments and multilateral organisations”:

- Legitimate Politics - Foster inclusive political settlements and conflict resolution;
- Security - Establish and strengthen people’s security;
- Justice - Address injustices and increase people’s access to justice;
- Economic Foundations - Generate employment and improve livelihoods;
- Revenues and Services - Manage revenue and build capacity for accountable and fair service delivery.

Conciliation Resources contend that *“[t]he post-2015 targets must be much more broadly owned and also relevant to countries affected by fragility and conflict, as they persevere in their efforts to attain lasting peace and a significant reduction in poverty levels”*. The importance that Conciliation Resources places on the causes and consequences of conflicts is echoed by *War Child International* (36), a specialist agency, working in countries devastated by armed conflict such as Iraq, Afghanistan, DR Congo, Uganda, Central African Republic and Syria.

According to *War Child International*, and as mentioned earlier, *without focussing on the plight of children in conflict areas***,** *there is no hope of achieving the MDGs, nor the SDGs, one may add.* However, if we are to optimize the success of the post-2015-SDGs, we may need to learn to work differently. This message is conveyed by co-founder of *War Child International,* Dr. Samantha Nutt, who, after close to 20 years visiting conflict zones, reflects on shortcomings of international aid, concluding that: *"We're not spending enough time, effort and resources on the preventive aspects of it: programs that focus on education, people's employment and income opportunities for women and young people.... Something happens in the news and we throw money at it and a year later we expect it to be better. Until you start investing in the local community organizations and addressing these structural deficits, you'll always be chasing your tail"* (37).

Her concern with 'scaling up' community support and development is in keeping with WHO Director-General Dr. Chan's reflections on how MDG/SDG interventions can be improved (5), and will assuredly contribute to "the process of setting the SDG agenda," discussed at the 67th World Health Assembly (WHA) in Geneva (38). At the latter WHA, Member States also agreed that health needs to be "at the core of the post-2015 development agenda" including *"the unfinished work of the health Millennium Development Goals, newborn health, as well as an increased focus on non-communicable diseases, mental health and neglected tropical diseases along with the importance of universal health coverage and the need to strengthen health systems".*

Completing the outstanding MDG work is of course of vital importance to ensuring global population health and well-being. However, taking into account lessons learned from the MDGs 2000-2015, achieving the 'health' goals will depend largely on significant and expeditious progress being made alongside the other ten thematic indicators underpinned by 'The World We Want' initiative.

Dr. Tewabech's keynote at the PHASA conference is a case in point (21). Too little progress has been made since 2000, and some areas have actually worsened despite timely and realistic strategic plans for improving health care. The gap between good intentions, meaningful application and outcomes remains vast, and, as argued compellingly by the London International Development Centre (3), Conciliation Resources (33), and War Child International (36), the SDGs-2015 need to be conceptualized and enacted through a wider lens that subsumes, expands and interrelates the MDGs in a framework with a view to realizing 'fairness' and 'Global Justice – underpinned by Peace, Security and Basic Human Rights'.

As one example, MDG 1 poverty and MDG 3, on gender equality, could become part of the Inequalities indicator. It is of course too late from a planning perspective, but recognizing the threats imposed by 'modernity', discussed in Chapter 2.0, an additional thematic indicator could have drawn attention to 'Modern Lifestyle and Well-Being', the probable cause in the rise of non-communicable diseases or conditions.

To this end and, as an illustrative example, Figure 2 juxtaposes goal guiding principles from the *Lancet* report (3) and eleven indicators that underpin 'The World We Want' (29). Emerging indicators, such as Population Dynamics and Growth and Employment, would require considerable global analyses of scope, priorities and enabling actions based to a large extent on the MDG experience.

Figure 2. Towards an integrated sustainable development goals framework

The African *'Health for All People'* campaign

Universal Health Coverage (UHC), discussed further in the next section, is about achieving health equity worldwide; it is also, to a large extent, an essential ingredient or 'stepping stone' of a longer-term global aim for global justice 'peace, security, and basic human rights'. Jonathan Jay, coordinator of the *Health for All Post-2015* campaign (39), launched in March 2014, commends policymakers for the progress achieved by the MDGs in areas such as 'AIDS, childhood immunization, access to family planning and reproductive healthcare', along with helping to usher in a "Golden Age". However, he also points out that *"the rapid scale-up was leaving people behind"*, and that *"health inequalities continued to grow, both within and across countries"*, (and) *"[a]dvances in child survival and maternal care left a concentration of deaths in the poorest regions, with persistent gaps in access"*.

Furthermore, while acknowledging considerable progress with regard to preventing and controlling AIDS/HIVs, "hot spots of increased risk among groups that are marginalized and vulnerable" remain. These health concerns are now also being exacerbated by the increase in "non-communicable diseases", which he labels a "growing hidden iceberg" in developing countries – so daunting a global health challenge that many key players have been virtually paralyzed. The global civil society campaign, *Health for All Post-2015*, that is now underway in Ethiopia, Nigeria and Kenya calls *"for an approach that would correct inequities and bring everyone along–ushering not just the next era, but truly a new era in global health"*.

Achieving 'a new era in global health'

Echoing the goals of the international scientists (25), according to a global alliance of research institutes, the Independent Research Forum (IRF), *"sustainable development can only be achieved if four foundations exist"* (40):

- Economic progress
- Equitable prosperity and opportunity

- Healthy and productive ecosystems
- Stakeholder engagement and collaboration

Achieving the SDGs that are more inclusive and integrated in terms of ‘planet and population’ sustainability, as indicated in Figure 3, according to the IRF, will be optimized if eight major shifts take place:

- From donor/beneficiary country relationships to meaningful international partnerships
- From top-down decision-making to processes that involve everyone;
- From economic models that do little to reduce inequalities to those that do;
- From business models based on enriching shareholders to models that also benefit society and the environment;
- From meeting relatively easy development targets – such as improving access to financial services - to actually reducing poverty;
- From conducting emergency response in the aftermath of crises to making countries and people resilient before crises occur;
- From conducting pilot programmes to scaling-up the programmes that work;
- From a single-sectoral approach, such as tackling a water shortage through the water ministry, to involving various sectors, like the agriculture and energy sectors, which also depend on water.

Bringing “fairness” and “civil society goals” into the development framework

Unquestionably, in order to meet UN and other SDG challenges *“[m]uch depends on the fulfilment of MDG-8 – the global partnership for development”* (5), rightly recognized as a key factor by UN Secretary General, Ban Ki-Moon in 2012. These “global partnerships”, he asserts, should stretch beyond volunteerism – and could be greatly enhanced if ‘fairness’ and the civil society goals, mentioned previously (35), were simultaneously advanced by global leaders (41-44) – especially by those who place ‘global justice - peace, security and basic human rights’ ahead of self-interests.

With proposed ‘global justice’ at its SDG core, supported by a set of eleven thematic indicators to ensure ‘sustainable development’, depicted in Figure 3, the MDG refrain *“progress has been uneven both between and within countries”* should no longer be an acceptable option or convenient ‘escape route’. The global challenge is huge, but the rewards for this and future generations are much greater.

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REVIEW ARTICLE

Ethics in research and publication of research articles

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Abstract

Science aims at promoting knowledge by gathering and discovering the objective truth, the facts that are independent of human interests, their values, ideology and biases. The way in which scientists come to this goal is through the universally accepted and thoroughly regulated processes – the *scientific method*. There is no clear definition which will answer the question what is unethical in biomedical research. All people recognize some common ethical norms but different individuals interpret, apply, and balance these norms in different ways in light of their own values and life experiences. Generally, it can be said that unethical behaviour in science is any significant mistreatment of intellectual property or participation of other parties, deliberately hampering the research process or distortion of scientific evidence, as well as all the behaviours that affect the integrity of scientific practice. Given the importance of the primary goal of scientific enterprise, that is search for truth and trustworthy results, ethics in science has increasingly come into focus. There are several reasons why it is important to adhere to ethical norms in research. Norms promote the aims of research, such as knowledge and truth, variety of moral and social values and help to build public support for research.

This paper analyzes the major principles of ethical conduct in science and closely related topics on ghost authorship, conflict of interest, co-authorship assignment, redundant/repetitive and duplicate publications. Furthermore, the paper provides an insight into the fabrication and falsification of data, as the most common forms of scientific fraud.

Keywords: conflict of interest, ethics, fabrication and falsification of data, ghost authorship, publication, redundant and duplicate publication, research.

Conflict of interest: none.

Ethics in science and scientific research

Science aims at promoting knowledge by gathering and discovering the objective truth, the facts that are independent of human interests, their values, ideology and biases. The way in which scientists come to this goal is through the universally accepted and thoroughly regulated processes – the *scientific method* (1-8). Every step of this method, if implemented correctly and truthfully, helps to reach objective goals, with significant contribution to the welfare of the society as a whole (1).

There is no clear definition which will answer the question what is unethical in biomedical research. All people recognize some common ethical norms but different individuals interpret, apply, and balance these norms in different ways in light of their own values and life experiences. Generally, it can be said that unethical behaviour in science is any significant mistreatment of intellectual property or participation of other parties, deliberately hampering the research process or distortion of scientific evidence, as well as all the behaviours that affect the integrity of scientific practice. In 2000, in the United States, fraud in scientific research was defined as fabrication, falsifying and plagiarism in the process of proposing, conducting and publishing the results (1). The Nordic countries proposed a much broader definition of fraud in scientific research describing it as *"any degree of dishonesty"*.

Given the importance of the primary goal of scientific enterprise, search for truth and trustworthy results, ethics in science has increasingly come into focus. William Lipscomb, 1976 Nobel- Prize-winner in chemistry, states that: *"I no longer put my most original ideas in my research proposals, which are read by many referees and officials. I hold back anything that another investigator might hop on and carry out. When I was starting out, people respected each-other's research more than they do today, and there was less stealing of ideas"*.

The following is a general summary of some ethical principles in scientific research and publication: honesty, objectivity, integrity, carefulness, openness, respect for intellectual property, confidentiality, responsible publication, responsible mentoring, respect for colleagues, social responsibility, non- discrimination, competence, legality, animal care, and human subjects' protection. There are several reasons why it is important to adhere to ethical norms in research. Norms promote the aims of research, such as knowledge and truth, variety of moral and social values and help to build public support for research.

Whatever the definition be, there are numerous examples of unethical behaviour in biomedical research which include (1):

- Bringing patients at risk (inadequate study design, inadequate supervision of the research, ignoring side effects or inadequate implementation of the protocol of the study);
- Participation in fraud;
- Creation or falsification of scientific results;
- Falsification of consent letters;
- Plagiarism.

There is no single solution that would allow full ethics in scientific research. Studies show that the misconduct is directly related to the following factors (1):

- Increased academic expectations and greater desire for publishing papers;
- Personal ambition, vanity and desire for fame;
- Predilection;
- Greed, which is directly linked to the financial gain;
- Lack of moral capacity to distinguish the right from the wrong.

In regard to the above listed values of the characteristic of many of us is to be expected that the behaviour that we are talking about can only be more pronounced over time and, as such, it may leave many consequences to science in general. It is therefore very important to take preventive measures that will greatly limit the implementation of these unethical measures. As a rule of thumb, the following preventive measures should be undertaken:

- Make ethical standards very clear to all researchers;
- Provide education and training for all researchers;
- Clearly identify methods of sanctioning such behaviour;
- Introduce stricter control of sponsored research.

Forms of unethical behaviour in biomedical articles

The various forms of unethical behaviour in publishing of the results of scientific research are described in the vast scientific literature (1). The most frequent types include: redundant publications (24%), animal welfare concerns (16%), duplicate publications (15%), authors' disputes (14%), data fabrication (8%), human welfare concerns (8%), plagiarism (7%), conflict of interest (5%), other forms including reviewer bias, or submission irregularities (3%).

Ghost authorship

Ghost authorship occurs when an individual who has significantly contributed to and participated in the development of a specific scientific work is not mentioned as an author. A special form of ghost authorship is a publication from an "invisible" author by the request of industry, where the credibility of results is questionable on account of the conflict of interest. An example is a situation where influential pharmaceutical industry or any other party can offer the benefit, employs professional writers or agencies to produce an article that will later be attributed to a certain recognized scientific researcher.

Example from practice:

- *Redux case:* Medications dexfenfluramine and phentermine (fen-phen) are drugs that have been prescribed for the simultaneous use in the treatment of excess weight until 1997 when it was found that the application of phentermine leads to primary pulmonary hypertension and heart valve damage. In May 1999, it was revealed that Wyeth-Ayerst Laboratories, a company that produces dexfenfluramine (Redux), hired ghost authors to write the results of research on this drug but the results were published under the names of prominent researchers.

  Also, during this period the company had participated in the destruction of data concerning the negative effects of the drug, which were published in medical journals.

Ghost authorship raises many ethical questions:

- *Conflict of interest:* Conflict of interest is a serious problem. Evidence-based medicine requires that clinical decisions are based on clear empirical evidences published in medical journals which are regularly audited. If clinicians base their decisions on such inadequate research results, it can have serious negative consequences for patients. For example, a certain medication that may not be the best drug of choice for a particular disease or patient but, for example, is strongly promoted by an influential expert in a reputable medical journal. In this way, patients may receive suboptimal treatment.
- *Academic integrity:* Authorship in certain research papers is often described as academic currency. Employment, wages and reputation in academic circles is largely related to the number, quality and frequency of publication of research papers, and regularly is considered as a valid indicator of one's work and abilities. In the case of

ghost authorship, when often a particular author is hired for a specific publication, which was actually written by another person, this publication is no longer an adequate measure of his/her work. Furthermore, ghost authorship separates the author from the responsibility. Universally accepted, an individual or group of authors are considered responsible for the information presented to the public. Knowing that they will be held responsible for their results presented in the paper, the researchers are trying to implement all the measures to better prepare the work before its publication. Therefore, if a person is listed as an author, but did not contribute to any stage of work or research project, his/her responsibility is questioned.

The International Committee of Medical Journal Editors has clearly published guides in which the author of a scientific paper must take an active participation in its preparation and publication, and accepts responsibility for its content. Hence, assigning co-authorship must be based on a significant contribution to the work, either in the feasibility study, analysis, interpretation, editing facilities, revision, and approval of the final version, as well as publication of the study.

Redundant / repetitive publication

It is considered as a special form of plagiarism. Redundant/repetitive publication is defined as the publication of copyright material with the addition of new, unpublished data. Thus, this is a form of un-ethics in science, where part or parts of already published article, but not the complete article, are published again. There are several reasons why this form of publishing is unethical. First, it undermines the international copyrights. Second, duplication of data with new data consumes the (valuable) time of peer- reviewers. Third, it leads to unnecessary expansion of already huge amount of published literature. Fourth, it leads to inadequate highlighting of certain information. This may also lead to potential interferences with subsequent meta-analysis.

Committee on Publication Ethics (COPE) proposes several recommendations concerning repetitive publications (1):

- Already published studies should not be republished if they do not further support the actual study;
- Repeated publication of an article that has been published in another language is allowed only when is clearly stated the original source;
- At the time of the article submission, the authors must submit the materials that are used in their article.

Therefore, the basis is that authors should not attempt to publish information that is already published in other articles. If authors consider that the already published data are of utmost importance for their study, then they should repeat the study or parts of the research, and use these data in the new publication.

Duplicate publication

It is defined as a publication of an article which is identical or largely overlaps with the article already published, with or without acknowledgments. Two articles share the same hypothesis, results and conclusions. Why scientists try to republish the same article? One reason is their perception that if someone wants to survive in the highly competitive field of science, one must create voluminous curriculum vitae. This is true in certain situations, especially subsequently when the number of articles rather than their quality, are largely valued as a factor in promotion and academic progress. Another, perhaps more justifiable reason for resorting to such unethical behaviour, lies in the fact that the authors sometimes try to reach the readers who are not so familiar with the journals in which the first article was already published, especially if the article was published in another language, such as for example the Chinese language which is relatively inaccessible. However, authors must have the consent of both journals before they decide to republish a certain article.

Duplicate publication is considered unethical for several reasons (4,5). The first is that, in an inadequate manner, the authors attempt to increase the scope of their own published works. Another important reason is that the article has the potential to change the image of documents. For example, if the results were taken into account twice or even more in a meta-analysis conducted to outline some best practices, the results would not be valid. This was the case of a study including all the published papers in which authors investigated the effect of the drug ondansetron on postoperative vomiting. It was observed that 17% of the published papers were duplicates, of which 28% of the patient data were duplicated. This led to a situation in which the efficacy of this drug was overestimated by 23%. This example points out the danger of duplication of publications by scientists who have conducted research, especially when making conclusions about the efficacy and safety of a certain drug.

Good practice in publishing scientific work requires that authors can submit drafts of their work only to one journal at a given moment. Authors may choose to re-propose to the same or another journal a revised version of the scientific work only when the first application receives negative answer on its publication. Regardless of these considerations, duplicate papers still occur and as such continue to be a significant problem across scientific journals. With the increasing availability of computerized medical databases such as PubMed, it becomes increasingly difficult for scientists to duplicate the previously published works. When the duplicated article is detected and reported by the reviewer, the journal rejects the proposed work or withdraws the article if it is already published. A statement on duplication is published in PubMed, which can have serious consequences for the author's reputation.

Conflict of interest

In the research and publication of scientific papers it is vital to ensure objectivity in order to preserve the integrity of the research, the reputation of the institution and the journals which published the study. From the author that conducted a study, it is expected to objectively present the results of the research, whereas from the reviewers it is expected to evaluate these results objectively. When experts at prominent positions get into a conflict of interest, it results in a biased or a poor decision-making; hence, the information that reaches the scientific circles and the readers in general can be modified and can be potentially devastating.

Conflict of interest may be individual or institutional. Recognizing the potential conflict of interest is usually simple, but sometimes it can be a challenge to determine whether a conflict exists or not, if it is not communicated. This is serious, because everything which is not transparent can be interpreted as a bias or corruption. Therefore, authors must clearly highlight potential conflicts, so as they can be treated appropriately.

Since 1995, the National Institute of Health (NIH) has decided to terminate a number of restrictions that had previously existed in terms of external cooperation, all in order to get the renowned scientists from different fields. This means the abolition of limits on the amount of articles that scientists can publish, or the time that can be spent on work outside the institute, as long as it does not affect their current job. Yet, it is very important for all scientists to clearly specify each source of income beside their regular employment.

However, it turned out that the big problem is the cooperation with pharmaceutical and biotech companies, and many experts share the opinion that such cooperation should be terminated. This also led the *New England Journal of Medicine* to ban the authors to write review articles if they had a financial interest in the company concerning the research.

However, in recent years it is increasingly difficult to identify authors who are completely independent of the industry.

Financial interest means everything from salaries or other income, interest in shares and intellectual property (patents, copyrights, etc.).

Authorship

Being the author of a scientific paper is a privilege and a great academic satisfaction. Not only that authorship contributes to science in general, but it also brings respect and reputation and also serves as a measure for the promotion and advancement. However, this seems only a part of the author’s equation. Another aspect is that authorship entails a great responsibility. Every scientist has its own vision of what it takes to become the author. But often, among the authors of a project, these visions are different. Personal conflicts and turmoil can often lead to disagreements on the issue of whom belongs the authorship. There are some guides, issued by the NIH, that define the authorship. In a broad sense, the author is any person who has significant intellectual contribution to a particular study. The International Committee of Medical Journal Editors (ICMJE) is a recognized organization dealing with ethical issues in biomedical research, and defines authorship as follows (1):

a) Significant contribution to the concept, design, collection, analysis and interpretation of the study;
b) Writing study template or revision in terms of intellectual content;
c) Final approval of the version which will be sent for publication.

The author needs to meet “a”, “b” and “c” criteria. Also, the first author should coordinate the study, and should respect all the rules of the study results submission. In addition, he/she should be responsible for communicating with the editors and the reviewers of the scientific journals.

Fabrication and falsification of data

Fabrication and falsification of data represents half of all cases reported as a form of unethical behaviour. Falsification of data includes its creation, selective publication of results (e.g. those corresponding to the study goals) and the omission of conflicting data, as well as the conscious exclusion or modification of data. This can include everything from the rejection of unwanted pieces of information to their unfounded creation.

This is unethical for several reasons (1,2):

- It affects the integrity of other studies, also the authors which are their creators and other authors in the same field of science;
- If such article is not discovered on time, the other authors lose their energy and time in vain trying to take advantage of the presented results in their studies;
- Creates a negative image of science in general and affects the general trust.

The problem of this kind of behaviour is particularly evident in clinical studies and may have negative consequences for the patients. For a scientist who carries out a study concerning a potential new treatment or management of a disease, the impact on the patient can be fatal or at the very least psychologically devastating, if the crucial information is false or deleted. The number of such papers containing falsified or fabricated data is increasing. Therefore, each author must faithfully and accurately collect, present and publish the experimental data.

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REVIEW ARTICLE

What we need to improve the Public Health Workforce in Europe?

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Abstract

With the growth and complexity of current challenges such as globalization, health threats, and ageing society, financial constraints, and social and health inequalities, a multidisciplinary public health workforce is needed, supported by new skills and expertise.

It has been demonstrated that public health education needs to include a wider range of health related professionals including: managers, health promotion specialists, health economists, lawyers and pharmacists. In the future, public health professionals will increasingly require enhanced communication and leadership skills, as well as a broad, interdisciplinary focus, if they are to truly impact upon the health of the population and compete successfully in today‘s job market. New developments comprise flexible academic programmes, lifelong learning, employability, and accreditation.

In Europe‘s current climate of extreme funding constraints, the need for upgrading public health training and education is more important than ever. The broad supportive environment and context for change are in place. By focusing on assessment and evaluation of the current context, coordination and joint efforts to promote competency-based education, and support and growth of new developments, a stronger, more versatile and much needed workforce will be developed.

Keywords: public health competences, public health education, public health workforce.

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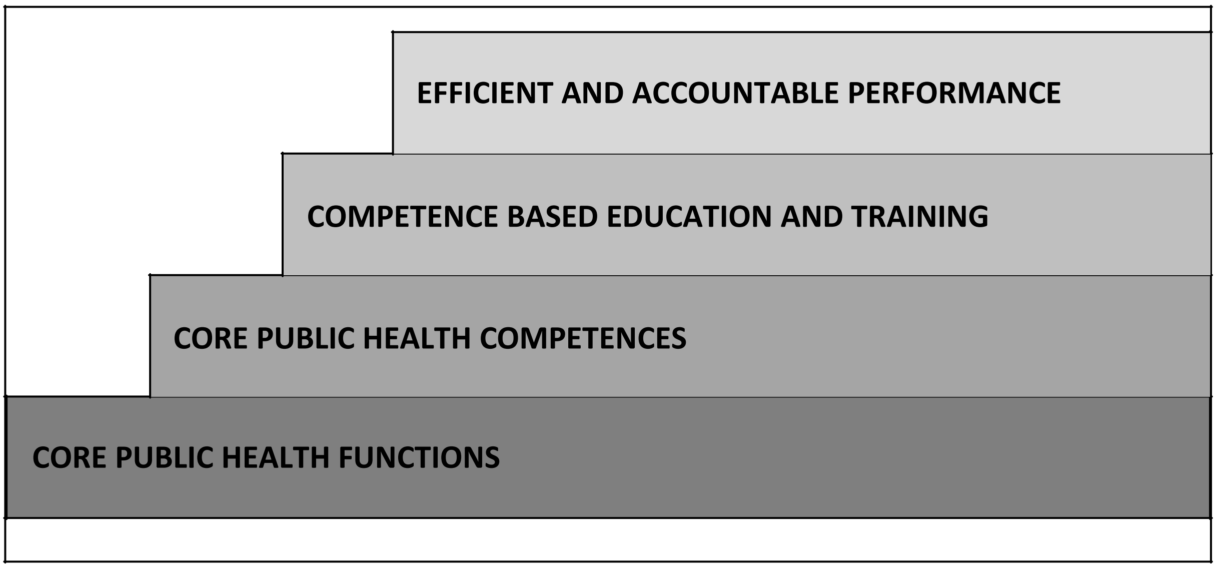
Introduction

The Bologna process and the WHO Regional Office for Europe‘s New European policy for health – Health 2020 – support the apparent move from interest in the traditional public health worker, a specialist physician, to a more generic worker who will be expected to work across organizational boundaries with a vast array of professionals to promote the public health agenda. New emphasis has been put on further developing public health systems, capacities and functions and promoting public health as a key function in society (1). To do this, public health education needs to include a wider range of health related professionals, including managers, health promotion specialists, health economists, lawyers, pharmacists etc. (2). In the future, public health professionals will increasingly require interdisciplinary and interagency team working and communication skills if they are to truly impact upon the health of the population.

But how do we get there? How can this need and the favourable supportive context actually be translated into a better equipped public health workforce? First we need to work together to better understand the current situation. Next we need to develop and agree upon core and emerging competences for a well-equipped work force. Following this, we need to translate those competences into competency based training education. Finally, we need to assess public health performance to determine how we are doing. The steps in Figure 1 summarise this process.

Figure 1. From core public health functions to core competences, teaching curricula and public health performance



Competence based education and training

Public health competences may be defined as a *"…unique set of applied knowledge, skills, and other attributes, grounded in theory and evidence for the broad practice of public health"* (3). WHO defines competence even more precisely as the combination of technical knowledge, skills and behaviours (4).

There is growing recognition that to adequately prepare public health students to meet the challenges of today, the schools must go beyond training in the traditional areas of biostatistics, epidemiology, environmental health sciences, health policy and management, and the social and behavioural sciences. These areas provide the student with a specific set of knowledge and and/or skills in a particular content area. While necessary, they are not sufficient for effective public health practice because they do not equip students with the contextual and integrative competences required to adapt to the new challenges that they will face in practice.

Thus, in recent years, growing interest can be observed in competence-based medical education due to its focus on outcomes, an emphasis on abilities, a de-emphasis of time-based training, and the promotion of learner-centeredness (5). This method trains graduates in problem solving skills applied to reality-based situations or real time problems in cooperation with institutions in the field (6). Competency-based education (CBE) is organized around competences, or predefined abilities, as outcomes of the curriculum. ‗‗Competences‘‘ have become the units of medical educational planning (2). CBE has also been introduced in public health training and education to close the bridge between teaching methods and the competences required in practice. In an era of insecurity, educators should make sure that every graduate is prepared for practice in every domain of their future practice. A first step in CBE is the identification of key competences that graduates need in order to perform adequately when entering the public health labour market. Box 1 below provides recommendations on developing competences.

The professional development of public health leaders requires competence based instruction to increase their ability to address complex and changing demands for critical services (7). Determining necessary competences provides a foundation for standards development that can be used to operationalise teaching objectives and design impact and outcome evaluation methods. Measuring programme outcome and impact satisfies all stakeholders: providers, practitioners, consumers, and other relevant bodies. Clusters of competences, aptitudes, or ability achieved may be indicative of the potential for future achievement. Public health workforce development has resulted in pressure for competence-based programming and performance measurement to demonstrate quality and accountability.

To support competence-based medical education, many frameworks have been developed: CanMEDS (8), and the Outcome Project of the (US) Accreditation Council for Graduate Medical Education (9). These frameworks form the basis of training for the majority of medical learners in the Western world (5). However, based on the results of a systematic literature review, Frank et al. observe that competence-based medical education still needs to identify and clarify controversies, proposing definitions and concepts that could be useful to educators across various educational systems (10). Still little is known about approaches to CBE in public health, its effectiveness and efforts made for educational quality assurance. Therefore, it is important to explore future directions for this approach to prepare health professionals. Among the current challenges facing schools of public health is how best to translate these competences into specific learning objectives with measurable outcomes.

The role of employers in determining competences

In order to assure that the Schools of Public Health adequately address the skill needs of the employment market, close partnerships are needed between employers and educators, both of which are essential components of a ‗knowledge triangle' based around the interaction of education, research and innovation (11). Many of the competences valued by employers are really enduring qualities, and the need is to find new and better ways for educators to develop them in students, so that they can then be applied in modern workplaces. In fact, the most important skill that Europe‘s workers will need in order to adapt to the demands of the future is the ability to be lifelong learners irrespective of the discipline.

To determine competences, it is of utmost importance to ask public health employers. Specifying competences needed by the public health labour market can result in a benchmark approach to competence-based education. The selected competences serving as benchmarks would standardize the criteria for change in education of public health professionals. The benchmarks are relevant, because there is a need for a rapid reform of the educational system as a result of economic and political changes or previous failures to meet employment market needs. Moreover, the benchmarks will provide a framework for evaluating the effects of various educational strategies on competence-based education. Therefore, there is a need to specify competence requirements for different types and levels of Public Health employers.

Thus, the question arises: what do employers consider as most important? Some studies suggest that employers value tacit knowledge, generic skills and work-based attitudes more than academic or technical knowledge which they take for granted employing graduates holding an MPH degree (12). They look for employees who are motivated, take responsibility and are willing to learn. In view of the contemporary public health employment market worldwide, it is important to acquire the right mix of general and specific skills that fits a certain job. Further distinction between skills can be made between ―hard skills‖ and ―soft skills‖. The former refers to rather technical, knowledge-related skills, while the latter includes competences such as communication and team work (13). These ―people skills‖ are essential in order to make the workforce more adaptable. The reason for this might be that these set of competences will not only prepare people for change emotionally and mentally, but they will also have an easier time adapting to a new environment. ―People skills‖ seem to matter in both daily private life and at work. For example, it was found that nurses have higher level of patient satisfaction than doctors because of their better interpersonal skills

Identification of competences in the US and Europe

There is growing consensus in the U.S. and Europe on the key competence areas in academic public health curricula. Influential documents have been produced by the Public Health Foundation, i.e. the Tier 1, Tier 2 and Tier 3 Core Competences for Public Health Professionals (Adopted May 3, 2010) (14). The following key public health competences are stated: epidemiology and biostatistics; environmental health sciences; health policy, management of health services and health economics; health promotion and education; and orientation to public health. Additionally, generic competences, like analytical skills, communication skills, financial planning and management skills, and cultural skills are recognized as important for every academic public health professional. In the United Kingdom, a Public Health Skills and Career Framework (15) was developed, which is an attempt to define competences for seven levels of public health employment.

In addition, through a year-long process, the Association of Schools of Public Health in the European Region (ASPHER) developed six main domains of public health competences (16, 17). There are also many other projects worldwide which aim at the development of more specific lists of competences e.g.: Core Competences Framework for Health Promotion (18), Core Competences for Public Health Epidemiologists (19) or competences in the area of public health leadership. The latter are especially of pivotal importance given the repeatedly stated need to develop strong leadership skills in public health professionals (1).

Box 1. Recommendations on competence development

1. Agree on common definitions, concepts and approaches related to competences, competence standards and CBE.
2. Review the existing lists of public health competences with the aim of finding synergies, common understanding, universality or individual health care system specificity as well as selecting best practice examples.
3. Agree on the underpinning quality criteria.
4. Develop Public Health Educational Competence Framework comprising core and emerging defined competences (which could be accepted by educators and public health professionals worldwide irrespective of the system they work in), values and convictions.
5. Ensure that adequate training is provided and help to develop the workforce in terms of career progression and staff recruitment and retention through such a framework. This should include quality assurance and solid accreditation mechanisms (16).
6. Carry out studies on CBE (a limitation of these studies thus far is that they mainly use qualitative approaches, like Delphi group rounds, panel studies and focus groups. While these approaches are very useful in identifying the perceptions of key competences, they preclude firm conclusions and have limited representativeness) (12). Based on the developed lists of competences, surveys should be given to public health employers, graduates and educators to prioritize key competences and their level of importance.
7. Use simple and comprehensive language and define competences as measurable units.
8. Make training and research relevant to practice and community service to revitalize the key role of schools of public health in this endeavour (16).
9. Study the effects of CBE on public health practice to make it evidence-based and see whether it makes a difference.

Table 1 illustrates the main emerging competences identified by the European Commission for 19 economic sectors. As can be seen, these represent skills related to innovations (e-skills, green skills), ―people skills‖ (intercultural skills and team work) and management (entrepreneurship, intercultural management). Moreover, it is emphasized that multi skilling and skill-mix of these factors will be common and necessary.

Table 1. Emerging competences

Social/cultural	Technical	Managerial
• Intercultural skills • Team work • Self management • Entrepreneurship and innovativeness	• ICT and e-skills (both at user and expert level) • Skills/knowledge related to new materials and new processes • Health and green skills (related to health and climiate and environmental solutions)	• Intercultural management • International value chain management • International financial management • Green management (implementing and managing climate and environmental friendly policies and solutions).

Adapted from: European Commission. (2010). *Transversal Analysis on the Evolution of Skills Needs in 19 Economic Sectors (13)*

In addition, a set of ―cross-cutting‖ competences has been developed by the Association of Schools of Public Health (ASPH) in the U.S. These include: 1) Communication and Informatics; 2) Diversity and Culture; 3) Leadership; 4) Professionalism; 5) Programme Planning; and 6) Systems Thinking (20).

In regard to *Communication and Informatics*, it is important that graduates have an understanding of and ability to use the newly emerging information technologies and social media tools (e.g. I-pads, I-phones, Facebook, Twitter, etc.) in designing and implementing health interventions and in communicating messages. These tools will become even more important in developing greater public health preparedness to deal with natural disasters, continuing infectious disease outbreaks, and the ongoing threat of bioterrorism. On a different but related note, they are also central to reaching new groups of potential public health professionals through online and distance learning technologies.

Providing training in the competences associated with *diversity and culture* is particularly germane to addressing the continued inequalities in health by socioeconomic status and race/ethnicity both within and across countries, and for addressing the health issues associated with increased migration. Such skills are essential to understanding and empowering communities to improve health and to adapting public health interventions to local cultures and contexts.

It is becoming increasingly evident that in public health, as in other areas of public service and in the private sector, *leadership* matters (see case study 1 annexed). Little is accomplished without it. The fundamental understanding is that no public health problem in history has been successfully met with technical skills alone. While many public health students may not think of themselves as leaders and may not aspire to leadership positions, they should be exposed to different approaches and skills associated with exerting leadership whenever and wherever their careers may take them. Investment should be made in the development of innovative and creative management and leadership programmes informed by systems thinking, information science and transformational change principles to strengthen public health leadership. Moreover, the particular type of leadership required is not of a traditional command and control variety, but rather akin to what has been termed

—adaptive‖ leadership: leading in contexts where there is considerable uncertainty and ambiguity. These environments often contain imperfect evidence and an absence of agreement about both the precise nature of the problem and the solutions to it. In the future, much of the authority of public health leaders will not come from their position in the health system but rather from their ability to win over and convince others through influence rather than control (21). More schools of public health are placing increased emphasis on the development of leadership competences.

In sum, the importance of cross-cutting core and emerging competences for adapting and adequately equipping academic programmes in schools of public health in Europe merits further exploration. Clearly, these competences will need to be adapted to local contexts associated with different historical, cultural, political and economic circumstances. Understanding the different settings involved is of great importance for accountable performance in public health. Public health practitioners are expected to be effective in different environments. Effective public health practitioners have to work with many different partners and paradigms.

Along with determining core and emerging competences to in order to develop competence based education in public health, it is important to make an overall strategic plan for public health training and education.

Box 2 below outlines a strategic framework for capacity building in public health training and education that should be articulated. This should be based on needs, with concrete objectives and targets.

Box 2. Strategic framework for capacity building in public health education and training

1. A strategic plan for capacity building in public health education and training in Europe should start from a SWOT analysis and should define specific capacity building objectives and targets (with minimum set of indicators for monitoring and evaluation), which will be linked to European public health needs as well as to the new European policy for health ―Health 2020‖ and European Public Health Operations as a public health framework for action;
2. The targets for a strategy to strengthen public health education and training should cover all areas of current conceptual models of public health capacity building within the Bologna Process as follows: organizational development and resource allocation; degree and curriculum reforms; quality assurance; qualification frameworks; international recognition of degrees and mobility within the European Higher Education Area (EHEA) and the rest of the world; policies on widening access to and increasing participation in higher education; attractiveness of European higher education and the global dimension of the Bologna Process;
3. Workforce development in public health should be considered among the highest priorities at national and European level;
4. Perspectives on public health and expectations in public health from representatives of other sectors and policy areas should be included to enrich capacity building and lay out a basis for health in all policies;
5. ―Public Health Identity‖ needs to be strong, reflecting the diversification of professional functions in public health and reconciling them with a shared identity:
6. both public health generalists and specialists are needed, as well as "horizontal" public health workers who consider health issues in other key sectors policy areas;

- education and training of public health professionals focuses on health incorporated into development policies and tackling the socioeconomic determinants of health;
- public health education and training requests to be recognized and developed in other key sectors. Public health topics, views and experiences should be included in medical studies and spread through curriculum from the very beginning, as an example: 10-15% proportion of overall medical teaching should become a target.

7. The strategy for capacity building in public health education and training needs to consider horizontal and vertical aspects: it must address all levels of government and administration (supranational to local), as well as in other domains (private, civil society, public, etc).
8. The pace of strategy development for capacity building in public health education and training must fit with the national and international context. One should proceed in a measurable way.

New developments in public health education and training

As we have seen, the articulation of and consensus on core and emerging competences can inform competency based education and training, leading to a better equipped public health workforce.

At the same time, several areas are emerging in the field of public health in Europe:

- Development of broader, more flexible academic public health programmes, based on mobility of students and professionals in the EHEA;
- Expansion of Lifelong Learning (LLL), which involves extending knowledge and gaining skills –acquisition of competences – in the SPHs, and application of innovation in training, particularly with regard to information technology (*Internet and Mobile technologies*, *OpenCourseWare* on selected topics, and supportive elements of *Distance Learning* in general); and
- Increased potential of higher education programmes, based at all levels on state of the art research fostering changes by innovation and creativity.

Regarding the first area, in this section we discuss the move towards joint degrees and collaborative approaches with other schools. With respect to the second, we describe the importance of lifelong learning for growth and especially, increased employability, a new development of its own. Finally, we explain the new accreditation agency in Europe, supporting and bringing about increased possibilities, improved accountability and better performance for public health education.

Broader, more flexible academic public health programmes

Although public health has always been ―global‖, under the rubric of ―international health‖, recent efforts have been underway to redefine ―international‖ health as ―global health‖ and think of it as a new and somewhat different field. This movement is being led primarily by medical schools, arguing that the new global health challenges require skills and approaches not typically found in ―traditional‖ schools of public health (22), pointing to the need for greater problem solving based field work, leadership development, and exposure to other disciplines such as engineering, business, law, and public policy. While many schools of public health have provided such training for years (23), there is no doubt that more could be done. The challenges of global health concerns could provide an opportunity for closer relationships between schools of public health and schools of medicine in addition to the other health science professional schools.

As we have illustrated, public health is interdisciplinary, drawing on many fields, including biology, mathematics and statistics, law, business, economics and numerous other social science disciplines. However, there is only limited inter-professional education in public health**.** Despite recent renewed interest in inter-professional training – among medicine, dentistry, pharmacy and public health – relatively little is occurring (2). Among the reasons are protection of professional turf; the lack of top academic leadership and resources; lack of time and alignment of academic calendars; lack of faculty training and incentives; and lack of recognition by accrediting bodies that inter-professional competences are important (24). However, the most limiting factor in the current conception of inter-professional training is the relative exclusion of the major focus of public health; namely, the health of populations and communities. When most people refer to inter-professional education, they are primarily talking about creating effective *patient care* centered teams. For example, a recent influential report defines ―inter-professionality‖ as involving *"…continuous interaction and knowledge sharing between professionals, organized to solve or explore a variety of education and care issues all which seek to obtain the patient's participation."* (25). Thus, to the extent that inter-professional education gains traction, one of the challenges for schools of public health is to define its role within this area.

Three possible approaches to inter-professional education include concurrent degrees, joint degrees, and ―embedded‖ degrees that could be given by schools of public health and other health science professional schools, such as medicine, nursing, dentistry, and pharmacy. A concurrent degree involves the admission of students to two schools (e.g. medicine and public health) from the start of the programme with a defined sequencing and pathway of interrelated courses. Upon successful completion of requirements, students are simultaneously awarded both degrees.

For example, at the University of California at Berkeley (USA) such programmes exist between public health and business, public policy, social welfare, city and regional planning, and journalism. However, this is not yet offered with the health science professional schools perhaps because they are not located on the Berkeley campus.

A joint degree, on the other hand, consists of students receiving two degrees, but typically not at the same time and with relatively little overlapping course work. Usually the medical or nursing degree is completed first and then students enrol for their MPH degree. In most cases, the MPH degree is considered ―secondary‖ to the students´ primary clinical degree. Many schools of public health in the United States offer such joint degrees.

Finally, a new and different approach exists which is called an embedded degree. This is offered as an arrangement between The University of California at Berkeley School of Public Health and Stanford University´s School of Medicine. In this arrangement, up to five Stanford medical students interrupt their medical school education during the second year to participate in an intensive one year 42 credit hour set of courses at Berkeley´s School of Public Health. The Stanford students then complete their medical training. Upon completion of a jointly overseen Berkeley-Stanford thesis project, students are awarded both their MD and MPH degrees.

The embedded approach is perhaps the most innovative of the three approaches in that it involves placement of a medical degree programme *inside* a School of Public Health while still in collaboration with a medical school. In addition to the Stanford arrangement UC-Berkeley School of Public Health and UC - San Francisco School of Medicine offer a combined ―joint medical programme‖, in which students spend their first three years on the Berkeley campus. Instruction focuses on case-based individual and team-based problem solving, assessing patients and their illness within the larger context of the community and the social environment in which patients live. Upon completion of the three years, students complete their medical training and board exams at the UC San Francisco Medical School campus. The extent to which these, and possibly other examples of inter-professional training, might be relevant to Europe and other parts of the world is a topic worthy of further discussion.

Lifelong learning and the importance of employability

We live in the era of learning, witnessing new educational policy discourse with neo-liberal tenets (26). Policies of the EU support the ―learning drive‖. It can be stated that we are observing a shift from competitiveness, growth and employment to employability – the ability to become employed. Currently, 21st century competences are on the front page of educational reforms in Europe and worldwide. A Green Paper from the EU Commission calls for greater investment in workforce planning, while the EU Council has called for greater priority to be given to Lifelong Learning as ‗a basic component of the European social model' (27). In line with the establishment of Lifelong Learning Programme (LLP) (Decision No 1720/2006/EC amended by 1357/2008 Decision), and the "New Skills for New Jobs" communication, the need to anticipate and match future skills has been developed.

With regards to knowledge and skills, there are several systems and frameworks set up on the EU level, especially the European Reference Framework that defines the eight main competences needed for any person to be able to function successfully in their job and in society. The advantage of using this reference tool is that it actually reflects on the learning outcome of a person instead of only using length of time in the educational system[2]. A classification structure called ‗European Skills, Competences and Occupations' (ESCO) is another example of ongoing work from the EU. This system is planning to bring together the most relevant skills and qualifications for numerous jobs into one network[3].

The European Commission supports the development of lifelong skills and competences both formally and informally and opens many financial instruments aiming to promote the development of European educational know how, including the use of modern technology to

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[2] Information retrieved 16/08/2011 from http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm.

[3] Information retrieved 16/08/2011 from http://www.cedefop.europa.eu/EN/news/16575.aspx.

support learning.

It has to be noted that effective use of the EC financial instruments contributes to the development of collaborative learning, exchange of good practices and rise of new forms of teaching and learning, ranging from problem-based, active, self-directed, student-centred approaches to blended or hybrid learning, which is a combination of face to face and online learning. A broad range of options exist, such as the principle of mutual recognition of programmes and diplomas through the Erasmus Mundus grant or simply individual mobility throughout Europe. These programmes are not only restricted to European countries, but allow for wider global participation, an important factor to be considered by public health educators. Moreover, programmes offered by the European Commission support the learning of foreign languages, increasing intercultural understanding, raising awareness of the potential of languages, and calling on decision makers to ensure efficient language education. It should be recognized that public health does not have specific a continuing professional development programme, unlike other health professions, and uses courses from other health care fields. However, as has been illustrated, many possibilities exist that can support the development of continuing education in public health and can help give rise to the still underdeveloped area of lifelong learning in the field.

European accreditation

Accreditation is an important step to help ensure or enhance the level and quality of public health curricula and improve the standardization of a core curriculum in public health education. Recently, along with developing lists of competences for public health professionals and for Master education, ASPHER has taken the initiative, together with partners – EUPHA, the European Public Health Alliance (EPHA), the European Health Management Association (EHMA), and EuroHealthNet – and in consultation with WHO Europe and the EU Commission, to establish a European Agency for Accreditation of public health educational programmes and schools of public health.

The accreditation agency has become an independent body, the *Agency for Public Health Education Accreditation (APHEA)*, assuring its credibility and gaining approval by international agencies in charge of accrediting bodies and entry into international quality assurance registers.

The European accreditation process for Master of Public Health (MPH) programmes is now under way. All participant organizations and individuals who contributed to this process are confident that this process will set new and improved standards for MPH training in Europe. This will ultimately help to improve the competences and employability of those graduating from public health programmes and entering the workforce, thereby contributing to the advancement of the field of public health across the vast European region.

Membership in the APHEA Board of Directors includes representatives from all five partner organizations, while guidelines require that the chair of the Board of Accreditation is an individual highly distinguished in the field, but not directly associated with any of the organizations in the consortium.

The curriculum required by APHEA is based on the core subject domains from the list developed in the European Public Health Core Competences Programme, although slightly regrouped (Table 2). The agency adopted a ―fitness for purpose‖ approach to assess an academic institution based on the premise that an academic institution will set its mission for education and research within the context of a specific regional or national environment. This approach requires institutions to be orderly in developing programme aims, in carrying out ongoing assessments, and in using this information to direct and revise final qualifications, curriculum modules, strategies and operations. Ongoing assessment is intended to lead to programme improvement as part of this approach. For purposes of determining conformity with APHEA accreditation criteria, the Board of Accreditation will consider current developments and planned changes as they relate to the ―fitness for purpose‖ process. This approach takes into account the diversity of the European schools of public health, but simultaneously sets certain curriculum standards for high quality education and training in public health in Europe.

The Call for Commitment circulated to ASPHER members in October of 2010 indicates that there is great interest among ASPHER member institutions to undergo accreditation of their public health or equivalent programmes at the European level. The agency started with three accreditations in 2011 and hopes to reach a capacity of ten per year by 2015.

Table 2. APHEA core subject domains for MPH curricula

Core subject areas **Credit ranges****	**Curriculum content**	**ECTS ***
Introduction	Introduction to public health	2
Methods in public health	Epidemiological methods, biostatistical methods, qualitative research methods, survey methods	18-20
Population health and its determinants	Environmental sciences (including physical, chemical and biological factors), communicable and noncommunicable disease, occupational health, social and behavioural sciences, health risk assessment, health inequalities along social gradient	18-20
Health policy, economics, and management	Economics, healthcare systems planning, organization and management, health policy, financing health services, health programme evaluation, health targets	16-18
Health education and Promotion	Health promotion, health education, health protection and regulation, disease prevention	16-18
Cross-disciplinary themes (mandatory and/or elective courses)	Biology for public health, law, ethics, ageing, nutrition, maternal and child health, mental health, demography, IT use, health informatics, leadership and decision-making, social psychology, global public health, marketing, communication and advocacy, health anthropology, human rights, programme planning and development, public health genomics, technology assessment	21-23
Internship/final project resulting in thesis/ dissertation/memoire	Supervised by faculty (full time and/or adjunct)	24-26

* European Credit Transfer and Accumulation System (or equivalent).

** The subject areas and credit ranges above are recommended; the accreditation process will assess the credit division among subject areas for a given programme.

APHEA – http://www.aphea.net
CEPH - http://ceph.org/pg_about.htm

Conclusions

Public health is rapidly gaining prominence in the various public policy domains in Europe. The increasing importance of preparedness towards major health threats, the growing recognition of the fact that health is an important resource for economic growth and sustainability, and the heightened awareness of important health inequalities in Europe are powerful driving forces in this regard. However, many EU Member States and Candidate Countries have insufficient institutional and professional capacity for public health and the process of reforming the relevant services is slow. Compared to the United States and other industrialized countries, as well as some emerging economies (e.g., Brazil), the relative lack of public health capacity in the EU is striking (28). In addition, the situations within countries differ a great deal.

As stated in the European Action Plan:

Current public health capacities and arrangements of public health services vary considerably across the WHO European Region. These differences reflect variations in political prioritization and organizational models of public health services, as well as the distribution of functions and responsibilities across different administrative levels. However, there are many similarities across the European Region, mainly in basic needs for public health information, knowledge and competences. There are often continuing problems of under-resourcing, skill shortages, insufficient capacity, poor morale and low pay. Competency frameworks for a public health workforce, as well as career pathways, remain under-developed. Public health functions are fragmented and sections of the workforce may work in an isolated way. While research capacity is well established in some countries, effective facilitation of research capacities to support policy development and programmes still lags behind (21).

As an essential element of good governance, the European Ministers of Health in the Council of Europe request that a competent post-graduate training institution is available at national level, as well as in large regions, with links to both academic and health administrations (29). The Schools and Departments of Public Health are the main structure to provide education and training for public health professionals, as well as consultation and applied research for health administrations. The public health services, comprised of qualified and certified public health professionals, have to address the four main deficits of information, prevention, social equity and a weak regulatory framework. It is estimated that an additional 22,000 public health professionals are required per year for the European Union alone to maintain an appropriate level of services. Almost three times the present educational capacity is needed to provide these numbers.

However, in order to meet population health needs, significant efforts are required not only to increase the number of public health professionals, but also their quality and relevance to public health (21). Traditional disciplinary, sectoral approaches are no longer sufficient to resolve complex health problems and provide different perspectives (30). Investing in a multidisciplinary public health workforce is a prerequisite for current challenges. In fact, as stated in the European Action Plan for Strengthening Public Health Capacities and Services

“a sufficient and competent public health workforce constitutes the most important resource in delivering public health services.” (21).

The European Schools and Departments of Public Health have widely adopted the Bologna format of teaching, as 47 countries are committed to joint action for strengthening a European Higher Education Area (EHEA). In spite of this, and as we have indicated, inequalities and the need for harmonization still exist. Therefore, agreement is sought especially on standardized lists of competences required in order to perform specified service functions. The education and training of public health professionals in Europe has to be interdisciplinary and multi-professional, comprising the medical as well as the social sciences. In addition to core competences, cross-cutting competences are important to consider, including broader, multidimensional areas, such as leadership and diversity and culture. These competences should inform and shape public health education and training programmes, leading to competence-based education. This approach closes the bridge between traditional teaching methods and the competences actually required in practice. Moreover, it is recognized that education and training for public health should be continuously evaluated and updated by use of performance measurement in everyday public health practice.

Employability is one of the key criteria for successful training of public health professionals. Therefore, two key questions have to be answered: 1) Who employs the public health professionals and what are their agendas? 2) What is the performance of public health professionals? It is of utmost importance to measure preferences of public health employers with respect to the competences required by graduates of public health studies at Bachelor and Master degree levels. Specifying competences required by the public health labour market can result in a benchmark approach to competence-based education. The selected competences serving as benchmarks would standardize the criteria for change in education of public health professionals (31).

The European Union has recognized the importance of developing the field of public health with its ET2020 strategy and both the EU and WHO (Health 2020) are cooperating. However, each country should develop a strategic plan for capacity building in public health education and training, starting from a SWOT analysis and defining specific capacity building objectives and targets with a minimum set of indicators for monitoring and evaluation (see case study 2 annexed).

New developments are heading in the direction of broader approaches to training, employability, and better performance of public health professionals. The focus is on defining the underlying competences needed for students to become effective global health professionals and leaders. In the age of innovation, the most valuable knowledge will be tacit, and universities and business must create environments that promote imagination, inspiration, intuition, ingenuity, initiative, a sense-of-self, self-assurance, self-confidence and self-knowledge. In the future, the public health professional will increasingly require skills such as interdisciplinary and interagency team working and communication skills.

To the extent that inter-professional education gains traction, one of the challenges for schools of public health is to define its role. Three possible approaches include development of concurrent degrees, joint degrees, and ―embedded‖ degrees that could be implemented between schools of public health and other health science professional schools such as medicine, nursing, dentistry, and pharmacy.

During recent years, the relevance of a concept of Lifelong Learning has been recognized by all actors, particularly the European Union. Supported by blended or hybrid learning and employing online technology, these developments will change the educational landscape for all professionals and help make professionals more employable.

In addition, accreditation agencies can help raise the quality and standardization of a core curriculum in public health education. The recent development of the Agency for Public Health Education Accreditation (APHEA) in Europe will support and promote improvements in training.

Finally, it should be recognized that for the public health workforce to truly be equipped to tackle current public health challenges, genuine leadership should exist at all levels.

Leadership that is transformational and collaborative, not top-down, needs to be in place at the policy level, to bring about educational reform; at the teaching level, to implement change; and at the level of public health professionals, to put into practice the new skills.

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ANNEX

Case Study 1: Public health leadership in Europe (Katarzyna Czabanowska)

In October 2010, ‗Leaders for European Public Health' (LEPHIE) was developed, a European Erasmus Multilateral, Curriculum Development project in the lifelong learning (LLL) format. This is a collaborative effort between Maastricht University (NL), the Sheffield Hallam University (UK), Lithuanian University of Health Sciences (LT), Medical University of Graz (AT) and the Association of Schools of Public Health in the European Region (ASPHER), and resulted from an ASPHER and EUPHA on-line survey[4] that highlighted the need for online, problem-based leadership courses.

This module aims to develop leadership competences through the following:

- Examining the key debates around leadership in public health.
- Introducing key theoretical frameworks that underpin leadership learning, and applying theory to actual practice.
- Developing the ability to analyse the public health leadership role and development needs of individuals.
- Stimulating self-assessment of leadership competences to identify knowledge gaps and further training needs.

The competence-based programme focuses on a variety of situations related to public health risks with special attention paid to ageing and chronic diseases, as reflected by identified priorities. The public health leadership content is aimed to be applicable to performance in diverse European public health practices and contexts, and reflects the priorities and objectives of the European Health Programme.[5] Based on an extensive literature review and expert review panels, a framework was developed to support the curriculum and facilitate self-assessment.

The module uses innovative training methods, such as problem-based and blended learning formats (a combination of face-to-face and online learning), and students are active participants in the process. Thus, students have a common goal, share responsibilities, are mutually dependent on each other for their learning needs, and are able to reach agreement through open interaction (Suzuki et al. 2007). Such an educational approach proves to be successful in the LLL context. The participants are offered interactive lectures, tutorial group meetings and other collaborative sessions at a distance. The course is delivered via an intranet, such as Blackboard or Moodle, and course material can be directly downloaded.

After being successfully piloted in the UK, a mutually recognized international blended learning leadership course worth seven ECTS will be delivered by the international consortium. It is believed that the integration of modern learning technology with collaborative learning techniques, supported by interdisciplinary competence-based education transcending institutional boundaries, will result in transformative learning, which is about developing leadership attributes (Frenk et al. 2010). This constitutes a small step towards inter-professional and trans-professional education.

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[4] Available from: http://www.old.aspher.org/pliki/pdf/LLL_Liane.pdf.

[5] http://ec.europa.eu/health/programme/policy/2008-2013/index_en.htm.

Case study 2: Regional cooperation – the development of a regional public health strategy in South Eastern Europe (Vesna Bjegovic-Mikanovic)

A regional public health strategy for South Eastern Europe was developed during a public health expert seminar in August 2004, Belgrade, organised in the framework of the Forum for Public Health in South Eastern Europe (FPH-SEE). Strengths, weaknesses, opportunities, threats and their interactions were defined based on a SWOT analysis. Within this, a framework for a regional public health strategy, including strategic goals and objectives, was determined based on priorities identified by nominal group techniques.

One of the identified goals was ―Strengthening human resources in public health‖, and, within this was the objective of ―Ensuring sustainable development of human resources.‖

Activities included:

- Developing common curricula for public health on different academic levels.
- Providing a common glossary and terminology in public health.

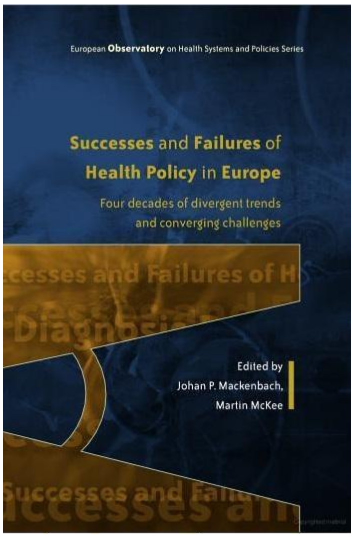
Based on this process, there are the following proposed exercises:

Task 1: Students split up into groups to discuss the draft strategic framework. They analyse strengths and weaknesses, considering a) the development process; b) the draft framework with its goals and objectives; and c) recommendations for improvement. Each group prepares a summary report on strengths, weaknesses and their recommendations, and presents them in plenary.

Task 2: Students compare the national public health strategy of their own country (or health policy if no specific public health strategy exists) with the draft framework for a regional strategy and compare them by highlighting similarities and differences.

Task 3: Students experience participatory and consensus building methods: A SWOT analysis on the public health situation in their country (or province, district, community, or city) is conducted and subsequently, a priority setting method is applied so that a list of public health priorities can be identified in the selected setting.

Source: Public Health Strategies: A Tool For Regional Development. A Handbook for Teachers, Researchers and Health Professionals. ISBN 3-89918-145-X, Lage, Germany: Hans Jacobs, 2005: 583-647.



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