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Volume I, 2014

Genc Burazeri,  
Slavenka Jankovic,  
Ulrich Laaser,  
Jose M. Martin-Moreno(Eds.)



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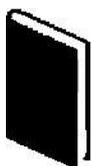
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# South Eastern European Journal of Public Health Volume I, 2014

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Editors: Genc Burazeri and Lijana Zaletel Kragelj. Assistant editor: Kreshnik Petrela. Lage 2013, 455 p., ISBN 978-3-89918-806-6, free of charge.

### **Forum for Public Health in Southeastern Europe, Volume II: A Hand-book for Teachers, Researchers and Health Professionals (2nd edition).**

Editors: Genc Burazeri and Lijana Zaletel Kragelj. Assistant editor: Kreshnik Petre-la and Herion Muja.  
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Nova Science Publishers 2013; ISBN 978-1-62808-169-5 (eBook).

# Welcome address

As the incoming president of the Association of Schools of Public Health in the European Region (ASPHER) for the period 2013/15 it is my pleasure to announce the start of a new public health journal, the South Eastern European Journal of Public Health (SEEJPH), published by Jacobs Company in Germany and managed by the executive editor Professor Dr. Genc Burazeri MPH, PhD, Maastricht and Tirana. The journal will start with 2 editions per year in 2014 and builds on the **success of the Forum for Public Health funded by the German Stability Pact over the first decade of this century.**

The forthcoming South Eastern European Journal of Public Health (SEEJPH) is an open-access, international peer-reviewed journal involving all areas of health sciences. The main focus of the journal, however, is on public health. In addition, this journal encourages submissions from scientists and researchers pertinent particularly to Eastern European countries. From this perspective, the aim of SEEJPH is to offer a means for publication to researchers from the transitional former **communist countries of Europe in order to promote their scientific work and increase their scientific visibility in Europe and beyond.**

I wish this endeavour full success and assure the editors my full support.

Prof. Vesna Bjegovic-Mikanovic

## EDITORIAL

### **South Eastern European Journal of Public Health: A new international online journal**

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The South Eastern European Journal of Public Health (SEEJPH) is an online, open-access, international, peer-reviewed journal, published by Jacobs Company in Germany (1). Starting from 2014, the journal will initially release two issues per year, at the end of June and the end of December, although articles will be immediately published online following acceptance – a unique advantage of open-access journals, whose relevance within the corpus of scientific literature has been growing in recent years.

SEEJPH follows the achievements of the Forum for Public Health in South Eastern Europe, funded by the German Stability Pact during the first decade of this century (2).

SEEJPH covers all areas of health sciences, although its main focus is public health. The journal particularly encourages submissions from scientists and researchers from Eastern European transitional countries in order to promote their research work and increase their scientific visibility in Europe and beyond.

The need for scientific journals such as SEEJPH springs from the peculiar geopolitical history of the region. During the late 1980s and early 1990s, the disintegration of the communist regimes in most of Southeastern Europe hastened the collapse—or at least enormous challenges—in the economies of the region. Subsequently, a market-oriented economic system emerged involving major social, cultural, and economic reforms, with similar changes observed in all former communist countries in Central and Eastern Europe. The rapid transition from state-enforced collectivism towards a market-oriented system brought with it increasing poverty levels, high unemployment rates, financial downturn, and massive emigration. The situation was further aggravated by the devastating ethnic wars which involved most of the countries of the former Yugoslavia.

Today, life expectancy in the transition countries is still significantly lower than in Western Europe (3), with most of the east-west gap explained by the higher death rates from cardiovascular diseases and injuries in Eastern European populations (4-6). The particularly high levels of smoking, alcohol consumption, unhealthy dietary habits including low intake of fresh fruits and vegetables (3,6,7), and adverse socioeconomic and psychosocial conditions (8,9) have been persuasively linked with an excess risk of cardiovascular disease, diabetes and other chronic conditions (4,7).

Nonetheless, the health effects of such rapid transition, especially in the distinctive context of countries of the Western Balkans, have not been sufficiently investigated. To date, ongoing research on the deleterious health effects of transition is scant and has not received sufficient attention in the international literature. There is an evident need to promote scientific publications pertinent to researchers from transitional countries in Europe, to promote the development of a field we will refer to as “*Health Transition Research*”.

SEEJPH aims to fill this void by offering a unique opportunity for the exchange of scientific information, active and rapid communication between researchers and scientists, and dissemination of findings from research conducted in Central, Eastern, and South Eastern Europe. We look forward to fostering the advance of scientific knowledge in the region, in the hope that a solid and context-specific evidence base for public health will lay the foundation for more effective health policies to serve Eastern European populations.

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## ORIGINAL RESEARCH

### **Efficacy of an IgM preparation in the treatment of patients with sepsis: a double-blind randomized clinical trial in a pediatric intensive care unit**

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## **Abstract**

**Aim:** Additional treatments for sepsis to be administered alongside the standard therapy recommended by the Surviving Sepsis Campaign have recently undergone evaluation. Due to its anti-bacterial, anti-inflammatory and immunomodulatory properties, intravenous polyvalent immunoglobulin M (IgM)–enriched immunoglobulins (IgM preparation) has been investigated as one of these potentially valid adjunctive therapies. The aim of this trial was to assess the efficacy of an IgM preparation as adjuvant therapy in the treatment of pediatric patients with sepsis.

**Methods:** In our study, 78 septic patients admitted to a pediatric intensive care unit (PICU) at the University Hospital Center “Mother Teresa” in Tirana, Albania, were randomized into two groups (intervention and control). All patients were treated according to standard PICU sepsis guidelines. Additionally, patients in the intervention group received the IgM preparation Pentaglobin® while patients in the control group received standard sepsis therapy, but no immunoglobulin administration.

**Results:** The survival rate was higher in the intervention group (87%, N=34) than in the control group (64%, N=25), and this difference was statistically significant (P=0.03). Length of stay (LOS) was also significantly shorter in the intervention group.

**Conclusion:** In this study conducted in Albania, use of an IgM preparation, in addition to standard sepsis therapy, led to a significant increase in the survival rate as well as a significant reduction in LOS compared with placebo, when administered in PICU patients with sepsis.

**Keywords:** bacterial infections, IgM preparation, immunoglobulin, immunotherapy, Pentaglobin®, sepsis.

## **Introduction**

Sepsis is a major cause of morbidity and mortality in critically ill pediatric patients (1,2). About 25% of all PICU admissions are due to life-threatening infections in pediatric patients (2). Although numerous advances in the management of critically ill children with severe infections have occurred in recent years, the mortality associated with severe sepsis and septic shock remains unacceptably high, with a rate between 20% to 56% (1,3-10). Because of its broad and potent activity against bacteria and their exotoxins as well as against the excessively activated pro-inflammatory host response, an IgM preparation was investigated as an adjunctive treatment for patients with severe bacterial infections (11-13). This IgM preparation is the only approved intravenous immunoglobulin for treating severe bacterial infections and contains anti-bacterial, anti-inflammatory and immunomodulatory antibodies from the immunoglobulin classes IgM, IgG, and IgA. In this respect, the preparation differs from all other standard intravenous immunoglobulin preparations, which contain almost only IgG (3,14,15).

To date, there are no studies conducted in Albania assessing the efficacy of IgM preparations in pediatric wards. In this framework, the objective of this trial was to assess the efficacy of an IgM preparation as adjuvant therapy in the treatment of pediatric patients with sepsis in Albania. We hypothesized that administration of the IgM preparation in combination with standard-of-care antibiotics would increase the overall survival rate in septic patients admitted to PICU.

## **Methods**

This was a prospective, double-blinded, randomized, placebo-controlled trial conducted in the PICU of the University Hospital Center “Mother Teresa” in Tirana, Albania, between January 2009 and December 2010.

The Ethics Committee of the University of Tirana approved the study protocol and a written informed consent was obtained from the parents or guardians of all of the patients. The study was conducted in accordance with the Declaration of Helsinki and followed Good Clinical Practice guidelines and national regulations. The study was registered in a clinical trial registry. To increase patient homogeneity and to strengthen internal validity, strict diagnostic criteria were applied. Proven sepsis was defined according to 2001 ACCP/SCCM sepsis criteria (16). Patients with sepsis (SIRS, sepsis, severe sepsis, septic shock) documented infection and dysfunction of an organ or hypotension were enrolled in the study. Patients fulfilling one or more of the following criteria were not included in the study: severe immunosuppression, irreversible end-stage damage of vital organs, a Glasgow coma score of 3/15, comorbidities and/or contraindications to any of the study treatments.

One hundred and three patients were assessed for eligibility in the study. Eighteen children did not meet the inclusion criteria, whereas seven parents declined study participation of their children.

## **Intervention**

The study utilized a parallel-group design whereby patients were stratified by baseline characteristics such as age and gender and also according to diagnosis and severity of disease. Patients were randomly assigned in a 1:1 ratio to the intervention or control group. Treatment assignment was randomly generated by computer in stratified permuted blocks of two. The intervention group received the IgM preparation while the control group did not receive any immunoglobulin administration (Figure 1).

Fluid administration was protocolized. All patients received isotonic intravenous fluid bolus 3

20-40ml/kg in 1 hr. Repeated boluses were administered depending on clinical parameters, including heart rate, capillary refill, blood pressure, urine output and level of consciousness. A researcher sealed envelopes labeled only with the patient number and containing the respective study medication. Corresponding envelopes were opened by the researcher only after the enrolled participants had completed baseline assessments and were about to be allocated to a treatment group. Other investigators, staff, parents of the children, the nurse who administered the treatment and endpoint assessors were all blinded to treatment assignment.

### ***Study protocol***

All patients received standard sepsis therapy which comprised intravenous antibiotics. Patients in the intervention group received the IgM preparation Pentaglobin® intravenously. Administration of the IgM preparation was started on the day of sepsis diagnosis at a volume of 5 ml/kg body weight per day and was infused over six hours for three consecutive days. Patients in the control group received standard sepsis therapy, but no immunoglobulin administration.

A detailed clinical history was taken from all cases who were also subjected to physical examination. Demographic data (age and gender), body weight, height, [based on which the body mass index (BMI) was calculated] diagnosis at PICU admission, duration of stay in the PICU and outcome at discharge were recorded for each patient (Table 1). Study treatment was administered within eight hours after randomization. Patients were observed throughout their stay in PICU. Compliance, laboratory parameters, vital signs, hemodynamic data laboratory parameters and organ dysfunction were monitored on a daily basis. Protocol violations were defined before the start of the study. The study endpoint was death in PICU.

### ***Statistical analysis***

Based on literature review and in our previous experience, the expected mortality rate in the control group was anticipated as 60%, whereas the magnitude of the expected treatment effect was set at 40%. Type I error was set as  $\alpha=0.05$  in a two-tailed test and type II error as  $\beta=0.05$ . The 95% confidence interval (CI) for the difference between proportions was calculated as follows: (D) = D - 0.236 to D + 0.236.

After adjusting for a 5% drop-out rate, the sample size was estimated at 39 individuals in each group. The primary efficacy analysis was performed according to intention-to treat (ITT) principles, rather than as an explanatory analysis. All randomized patients were included in the ITT population and the per-protocol population included only patients who completed the treatment originally allocated in both groups.

Normal distribution of continuous variables was tested with the Kolmogorov-Smirnov test.

Mann-Whitney test was used to compare age, height and body weight of patients between the two groups.

Chi-square test was used to compare gender differences and laboratory values in each treatment group and the independent sample t-test was used to compare the length of stay (LOS) in the PICU as well as the BMI.

Mortality rates in the intervention and control group were compared with the chi-square test.

The difference in survival rates between groups was assessed using the Kaplan-Meier method and the log-rank test. The censoring time for the survival analysis was the PICU stay duration.

All statistical analyses were performed with SPSS, version 16.0.

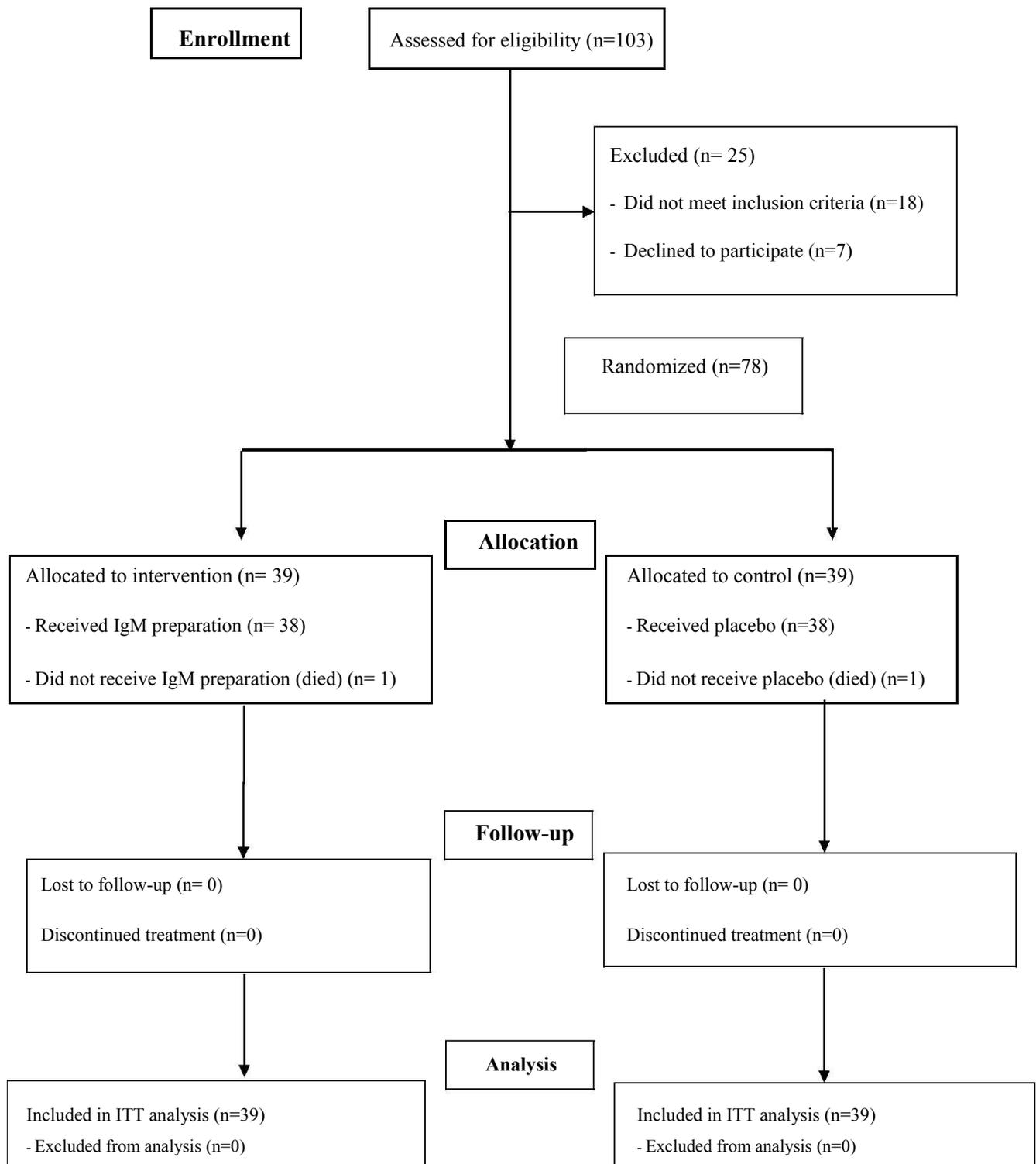


Figure 1. Patients included in the study

## Results

A total of 78 consecutive patients (aged from one month to thirteen years) with proven sepsis were included in the study after adjusting for drop-outs and non-evaluable patients. There were no statistical differences between treatment groups in baseline characteristics at PICU admission (Table 1). One patient in each group died before receiving the full course of therapy. A four-month old patient died on the first day of treatment in the intervention group and a six-month old patient died on the second day of treatment in the control group. There were no major or minor violations of the protocol. No withdrawals, patient exclusions and or losses to follow-up occurred in either treatment group. Mean treatment duration in both groups was three days. No other concomitant treatments were given in addition to the study treatment in both groups.

**Table 1. Baseline characteristics in the ITT population**

Variable	Intervention group (N=39)	Control group (N=39)	P
Age (years)	2.1 (3.1) (1.07 – 3.08) <sup>*</sup>	1.8 (2.7) (0.87 – 2.66)	0.6
PICU stay (days)	5.1 (3.1) (4.08 – 6.06) <sup>*</sup>	7.1 (2.4) (6.35-7.90)	<0.01
Males (N, %)	25 (64.1) (48.4 – 77.2) <sup>†</sup>	29 (74.4) (58.9 – 85.4)	0.4
Body weight (kg)	12.9 (8.1) (10.4 – 15.6) <sup>*</sup>	12.3 (6.9) (10.0 – 14.5)	0.7
Height (cm)	84.7 (24.8) (76.7 – 92.8) <sup>*</sup>	83.0 (22.6) (69.9 – 87.8)	0.8
BMI	16.7 (0.92) (16.4 – 17.0) <sup>*</sup>	16.8 (24.8) (16.5 – 17.1)	0.8

\* Data reported as mean (SD) (95%CI).

† Number (%) (95%CI).

### **Intention to treat analysis (ITT)**

Overall, of the 78 patients included in this study, 59 (75.6%) individuals survived. However, the survival rate was higher in the intervention group (87.2%, N=34) than in the control group (64.1%, N=25), with the difference of 23.1% being statistically significant (P=0.03).

The odds ratio (OR) for survival was 3.8 (95%CI=1.2-11.9). A Kaplan-Meier survival analysis also showed a statistically significant difference in the survival rate in the intervention group (log-rank=4.0, P=0.04) [Figure 2].

Furthermore, LOS in the PICU was significantly shorter for patients in the intervention group, compared to the control group (5.1±3.1 days vs 7.1±2.4 days; P<0.01).

Twelve (30.8%) children in the intervention group and nine (23.1%) in the control group were mechanically ventilated without a significant difference between them (P=0.6).

Cardiac, pulmonary, renal, CNS (central nervous system) and adrenal dysfunctions were involved, as well as glycemic control disturbances. MODS (multiple organ dysfunction) in our study occurred in 8 (10.3 %) patients.

We used hydrocortisone in 18 (23.1%) cases with catecholamine resistance and suspected or proven adrenal insufficiency (total cortisol concentration <18mg/dL).

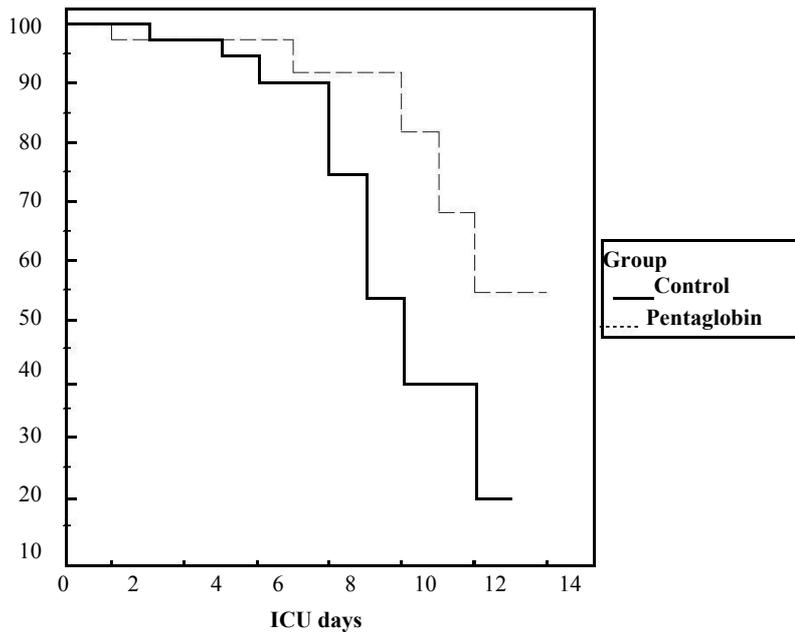


Figure 2. Kaplan-Meier survival analysis

Inotropes and vasopressors were administered in 26 (33.3%) patients. There was no surgical procedure involved during the study period.

The causes of death were renal failure, brain damage, hepatic failure, metabolic derangements, diffuse intravascular coagulation (DIC), ventilator-associated pneumonia (VAP).

No adverse events occurred during the study period. Additionally, no fatalities occurred after discharge from the hospital.

In our study we focused on anaphylactic reaction or anaphylactic shock to define an adverse event. Adverse reactions described in the enclosed leaflet of pentaglobine did not occur.

Blood samples were collected daily from each treatment group for the evaluation of hematological and laboratory parameters (Table 2). There were no statistically significant differences in the total WBC count, platelets, base excess in blood, and C-reactive protein levels between the two groups at baseline.

After treatment, the intervention group had statistically significant improvements in two inflammatory markers. Proportions of patients with C-reactive protein levels and total leucocyte and neutrophil counts <10000 were significantly higher in the intervention group, compared with controls ( $P=0.04$  and  $P<0.01$ , respectively).

There were no significant differences in changes in platelet counts and base excess in blood between treatment groups.

### ***Per-protocol analysis***

In total, 59 (77.6%) of the 76 patients who completed treatment survived. The survival rate was higher in the intervention group (89.5%) than in the control group (65.8%), with the difference being statistically significant ( $P=0.03$ ). A Kaplan-Meier survival analysis also demonstrated a statistically significant difference in the survival rate for the intervention group, with a hazard ratio of 3.1 (95%CI=1.1-8.6).

**Table 2. Patients with abnormal laboratory values before and after treatment**

Laboratory parameter	Intervention group (N=39) n (%) of patients	Control group (N=39) n (%) of patients	P
<b>Baseline</b>			
WBC <10000	24/39 (61.5%)	25/39 (64.1%)	NS*
Platelets <40000	10/39 (25.7%)	9/39 (23.1%)	NS
Base excess>8	19/39 (48.7%)	20/39 (51.2%)	NS
C-reactive protein >N	29/39 (74.3%)	29/39 (74.3%)	NS
<b>After treatment</b>			
WBC <10000	10/39 (25.6%)	18/39 (46.2%)	<0.01
Platelets <40000	6/39 (15.4%)	8/39 (20.5%)	NS
Base excess>8	11/39 (28.2%)	20/39 (51.2%)	NS
C-reactive protein >N	12/39 (30.8%)	22/39 (56.4%)	0.04

\*non-significant.

## Discussion

Treatment of sepsis is complicated and typically requires a multidisciplinary approach. In recent years, the immunotherapeutic approach has been extensively studied but the results of both experimental and clinical investigations have been puzzling. The administration of monoclonal antibodies directed against specific sepsis mediators has produced disappointing results, whereas the administration of polyvalent immunoglobulins has been associated with better outcomes across various subgroups of patients (1,4,13). Recently, a number of studies have indicated that an IgM preparation is associated with reduced morbidity and an increased survival rate in patients with sepsis, severe sepsis or septic shock (2,14,17). In children, however, all the trials have been relatively small and the evidence is insufficient to support a robust conclusion of the benefit.

In the present study, administration of an adjunctive IgM preparation in septic pediatric patients resulted in a statistically significant increase in survival rate of 23.1% in the intervention group, compared to control group. Another interesting result was the significantly shorter mean LOS in the PICU for patients receiving the IgM preparation, compared with controls. A similar outcome in LOS was shown in a study by El Nawawy et al. in which the mean LOS in the intervention group who received the adjuvant IgM preparation was significantly shorter than in the control group, with durations of six and nine days, respectively (2). Furthermore, a study published fairly recently showed that early administration of the IgM preparation is crucial. Delay in administration significantly increased the absolute risk of death by 2.8% every 24 hours. Therefore, in this study, the IgM preparation was administered additionally to antibiotics on the day of sepsis diagnosis and study inclusion (18,19).

In a meta-analysis comparing two types of polyvalent immunoglobulin preparations, an IgM preparation was found to be superior over a standard immunoglobulin preparation which contains mostly IgG (20). Statistically significant increases were shown in the survival rates of

adult and neonatal patients with sepsis and septic shock when treated with the IgM preparation in addition to standard sepsis therapy (11). The pooled results showed a relative reduction in mortality of 34% in adult sepsis patients who received the adjunctive IgM preparation (relative risk: 0.66; P=0.0009). The standard adjunctive immunoglobulin preparation showed a relative reduction in mortality of only 15% (relative risk: 0.85; P=0.04). In neonates with sepsis, a relative reduction in mortality of 50% was reported for the adjunctive IgM preparation (relative risk: 0.50; P=0.0003). The standard adjunctive immunoglobulin preparation resulted in a relative reduction in mortality of only 37% (relative risk: 0.63; P=0.03) (11,14,21,22).

A head-to-head clinical trial in neonates with sepsis showed similar results. Haque et al. (20) conducted a clinical trial with these two different polyvalent immunoglobulin preparations (IgM or standard immunoglobulin preparations). A statistically significant increase in the survival rate in the group treated with the IgM preparation was shown when compared with the control group treated with the standard immunoglobulin preparation where no increase in survival rate was observed (8,9). Moreover, other clinical studies in neonates and children have shown increases in survival rates due to administration of an adjunctive IgM preparation of between 28%-56% (11,17,22,23) – further demonstrating a survival benefit from this treatment.

Efficacy of the IgM preparation in patients of all ages is thought to be due to higher antibody titers against a broader variety of bacterial pathogens and their toxic products compared with standard immunoglobulin preparations (7,10,24). Additionally, the immune system initially responds with the production of IgM as the first line of defense against bacterial pathogens and hence IgM antibody titers increase before IgG antibody production starts (23,25). Moreover, IgM is more efficient in activating the complement cascade and leads to a more rapid and specific antibody response, compared with IgG (15,25).

With respect to neonatal sepsis, the efficacy of an IgM preparation is possibly due to the relatively low IgM levels in neonates after birth. During pregnancy, only a low level of IgM is transferred via the placenta to the fetus and endogenous IgM production in neonates starts only gradually.

### **Conclusion**

The use of an adjuvant IgM preparation Pentaglobin® in the treatment of pediatric sepsis patients resulted in an increase in the survival rate, a reduction in the LOS and an improvement in infection severity, all of which were found to be statistically significant in this study conducted in Albania.

**Conflicts of interest:** none declared.

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## ORIGINAL RESEARCH

### Level of competencies of family physicians from patients' viewpoint in post-war Kosovo

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## Abstract

**Aim:** Besides the health professionals' perspective, it is equally important to assess the perceptions of the users of health care services with regard to abilities, skills and competencies of their family physicians. Our aim was to assess the level of competencies of family physicians from patients' viewpoint in transitional Kosovo.

**Methods:** A nationwide survey was conducted in Kosovo in 2013, including a representative sample of 1340 primary health care users aged  $\geq 18$  years (49% males aged  $50.7 \pm 18.4$  years and 51% females aged  $50.4 \pm 17.4$  years; response rate: 89%). Participants were asked to assess the level of competencies of their respective family physicians regarding different domains of the medical encounter. The self-administered questionnaire included 37 items structured into six domains. Answers for each item of the instrument ranged from one ("novice" physicians) to five ("expert" physicians). An overall summary score related to family physicians' competencies was calculated for each participant [range: from 37 (minimal competencies) to 185 (maximal competencies)]. Furthermore, demographic and socioeconomic data were collected. General Linear Model was used to assess the demographic and socioeconomic correlates of the overall level of family physicians' competences according to patients' perspective.

**Results:** Mean value of the overall summary score for the 37-item instrument was  $118.0 \pm 19.7$ . It 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. Conversely, no sex, or educational differences were noted.

**Conclusions:** Our findings indicate a relatively high level of competencies of family physicians from patients' perspective in post-war Kosovo. Future studies should comprehensively assess the main determinants of self-perceived competencies of family physicians among primary health care users in Kosovo.

**Keywords:** competencies, family physicians, primary health care users, quality of care.

## **Introduction**

Recently, it has been argued that competency-based instruction is vital for professional development of health professionals (1). Hence, competency-based education enhances the abilities and skills of the health personnel to address complex and changing demands for critical services at a population level (1-3). Fostering competencies and skills of the health care workforce will lead to an increase in the satisfaction level of the users of health care services, which has been convincingly linked to a better quality of primary health care (4) and more favorable health outcomes (5,6). From this point of view, in order to meet patients' demands, quality improvement and performance evaluation have recently developed into core issues in primary health care practice (7).

We have previously argued about the need for development of useful tools for the continuous assessment of physicians' performance in order to identify potential gaps in their level of skills, abilities and competencies with the ultimate goal of improving the quality of patient care (7,8). To meet this end, we have suggested a conceptual framework and a suitable instrument which help to self-assess competency gaps among primary health care professionals (7,8). However, besides the health professionals' perspective, it is equally important to assess the perceptions of the users of health care services with regard to abilities, skills and competencies of their family physicians and the other health personnel. Thus, there is a need to develop measuring instruments for health professionals' competencies as viewed from patients' perspective.

In this line of argument, we have developed and tested an international instrument aiming at assessing the level of skills, abilities and competencies of health professionals from both family physicians' perspective (self-assessment) and from primary health care users' standpoint (8). This measuring instrument has been validated in Albania among primary health care users (9) and in general practitioners and family physicians (10). More recently, a cross-cultural adaptation of this instrument has been also conducted in Kosovo among primary health users (11) and family physicians (12).

In this framework, we aimed to assess the level of skills, abilities and competencies of family physicians from primary health care users' perspective in Kosovo, a transitional country in the Western Balkans. We used the validated version of the international instrument developed with the support of the European Community Lifelong Learning Program. This standardized tool addresses the competency levels of general practitioners and family physicians regarding different domains of quality of health care (7,8).

## **Methods**

A nationwide cross-sectional study was conducted in Kosovo in January-December 2013.

### ***Study population***

A representative nationwide sample of 1340 primary health care users (both sexes aged  $\geq 18$  years) was included in this survey. Calculation of the sample size was made by use of WINPEPI for a number of hypotheses related to patients' socio-demographic and socioeconomic correlates such as sex, age and level of education. The significance level (two-tailed) was set at 5%, and the power of the study at 80%. Based on the most conservative calculations, the required minimal size was about 1200 individuals. We decided to recruit 1500 individuals in order to increase the power of the study.

Of the 1500 targeted individuals, 160 did not participate in the survey. Overall, 1340 primary health care users were included in our survey [661 (49%) males and 679 (51%) females];

overall response rate: 1340/1500=89.3%]. The response rate was similar in each of the regions included in the survey. In addition, respondents and non-respondents had similar sex and age distribution in all of the regions included in the survey.

### **Data collection**

We employed an international instrument aiming at assessing the level of skills, abilities and competencies of family physicians from primary health care users' perspective. All participants included in this survey were asked to assess the level of skills, abilities and competencies of their family physicians with regard to the following six crucial domains of the quality of primary health care: (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).

Answers 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) (9-12).

An overall summary score [including 37 items; range: from 37 (minimal competencies) to 185 (maximal competencies)] was calculated for all participants included in this study.

Demographic and socioeconomic data (age and sex of participants, educational attainment, employment status and income level) and information on the overall satisfaction with the medical encounter and the number of health visits in the past year were also collected.

The study was approved by the Ethical Board of the Ministry of Health of Kosovo. All individuals who agreed to participate signed an informed consent form prior to the interview.

### **Statistical analysis**

Cronbach's alpha was used to assess the internal consistency of the 37-item instrument measuring family physicians' competencies from primary health care users' perspective.

Conversely, Spearman's rho was used to assess the linear association (correlation) of the subscale scores (domains) of the instrument.

General linear model was employed to assess the association of the overall score of competencies of family physicians' from patients' viewpoint with their demographic and socioeconomic characteristics. Unadjusted and age-adjusted mean values, their respective 95% confidence intervals (95% CIs) and p-values were calculated.

Statistical Package for Social Sciences (SPSS), version 17.0 was used for all the statistical analyses.

## **Results**

### **Background characteristics of study participants**

The overall mean age of survey participants was 50.5±17.9 years – it was similar in males and females (Table 1).

On the whole, mean years of formal schooling were 9.4±4.0 years. The educational attainment was higher in males compared with female participants (mean years of formal schooling: 10.3±3.7 years vs. 8.5±4.1 years, respectively). About 20% of study participants reported a low income level (18% in males and 21% in females), whereas 7% reported a high income level (8% in males and 7% in females). The unemployment rate was quite high in this

representative sample of primary health care users in Kosovo, particularly among female participants (53% vs. 22% in males). Very few participants reported their first health visit at the primary health care services in the past year (overall N=16), about 19% reported 1-2 health visits, whereas 18% of individuals reported seven or more health visits in the past year. Remarkably, survey participants reported a high degree of satisfaction with primary health care services: 75% of individuals perceived as “good” or “very good” the medical encounter, compared to only 3.4% of individuals who rated as “poor” or “very poor” the quality of primary health care services. There were no gender differences with regard to the overall satisfaction with the quality of primary health care services (Table 1).

**Table 1. Distribution of socioeconomic characteristics and satisfaction with health care services in a representative sample of primary health care users in Kosovo, in 2013**

Variable	Male (N=661)	Female (N=679)	Overall (N=1340)
<b>Age (years)</b>	50.7±18.4	50.4±17.4	50.5±17.9
<b>Educational level (years)</b>	10.3±3.7	8.5±4.1	9.4±4.0
<b>Income level:</b>			
Low	119 (18.0) <sup>†</sup>	146 (21.5)	265 (19.8)
Middle	491 (74.3)	485 (71.4)	976 (72.8)
High	51 (7.7)	48 (7.1)	99 (7.4)
<b>Employment status:</b>			
Employed	288 (43.6)	168 (24.7)	456 (34.0)
Unemployed	146 (22.1)	363 (53.5)	509 (38.0)
Students	66 (10.0)	55 (8.1)	121 (9.0)
Retired	161 (24.4)	93 (13.7)	254 (19.0)
<b>No. health visits in the past 12 months:</b>			
0	7 (1.1)	9 (1.3)	16 (1.2)
1-2	131 (19.8)	125 (18.4)	256 (19.1)
3-4	268 (40.5)	214 (31.5)	482 (36.0)
5-6	136 (20.6)	204 (30.0)	340 (25.4)
<b>≥7</b>	119 (18.0)	127 (18.7)	246 (18.4)
<b>Overall satisfaction with health services:</b>			
Very good/good	500 (75.6)	503 (74.1)	1003 (74.9)
Average	140 (21.2)	151 (22.2)	291 (21.7)
Poor/very poor	21 (3.2)	25 (3.7)	46 (3.4)

\* Mean values ± standard deviations.

† Numbers and column percentages (in parentheses).

### ***Instrument for measuring competencies of family physicians***

Overall, reliability (internal consistency) of the whole scale (37 items) was Cronbach's alpha=0.96 (95%CI=0.96-0.97); it was similar in male and female participants (0.97 vs. 0.96, respectively) [data not shown].

Table 2 presents a correlation matrix between the subscale scores (that is domains of the measuring instrument). Spearman's correlation coefficients ranged from 0.55 (for the linear association of “*leadership and management*” with the “*patient care and safety*” and the “*equity and ethical practice*” domains) to 0.70 (for the “*effectiveness and efficiency*” and the “*patient care and safety*” subscales) – indicating a moderate linear relationship between the domains of the family physicians' competencies instrument.

**Table 2. Correlational matrix of subscale scores (alias domains of the instrument)**

Domain	Continuing professional development	Patient care and safety	Effectiveness and efficiency	Equity and ethical practice	Methods and tools
Patient care and safety	0.57 (<0.001)*	-			
Effectiveness and efficiency	0.56 (<0.001)	0.70 (<0.001)			
Equity and ethical practice	0.58 (<0.001)	0.59 (<0.001)	0.64 (<0.001)		
Methods and tools	0.66 (<0.001)	0.62 (<0.001)	0.68 (<0.001)	0.64 (<0.001)	
Leadership and management	0.64 (<0.001)	0.55 (<0.001)	0.58 (<0.001)	0.55 (<0.001)	0.71 (<0.001)

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

### **Correlates of competencies of family physicians**

Mean value of the overall summary score for the 37-item instrument was 118.0±19.7 [range from 37 (minimal competencies) to 185 (maximal competencies)].

Mean value of the overall summary score of the competencies of family physicians from patients' viewpoint was higher among the younger (<45 years) participants compared with their older (≥45 years) counterparts (119 vs. 117, respectively, P=0.04) [Table 3]. There was no evidence of gender-differences in the mean scores of the overall competencies of family physicians even upon age-adjustment. Furthermore, mean scores of competencies of family physicians were similar among participants with different levels of educational attainment. On the other hand, the low-income participants exhibited lower mean scores of their family physicians' overall competencies compared with the high-income group (age-adjusted overall P<0.001). Employed and unemployed individuals exhibited similar mean scores – a finding which persisted also upon age-adjustment. Patients with frequent visits in the primary health care clinics (three or more visits in the past year) displayed the lowest scores of competencies of their family physicians (age-adjusted overall P<0.001). As expected, participants who were satisfied with the medical encounter showed a higher mean score of their family physicians' competencies compared with the individuals who were less satisfied with the quality of primary health care services (overall P<0.001) [Table 3].

**Table 3. Association of competencies of family physicians from patients' viewpoint with their demographic and socioeconomic characteristics; mean values from the General Linear Model**

Patients' socioeconomic characteristics	Unadjusted models			Age-adjusted models		
	Mean	95%CI	P	Mean	95%CI	P
<b>Age:</b>						
Younger (≤44 years)	119.4	117.6-121.0	0.042			
Older (≥45 years)	117.1	115.8-118.4				
<b>Gender:</b>						
Males	118.2	116.7-119.7	0.704	118.4	116.9-119.9	0.735
Females	117.8	116.3-119.3		118.0	116.5-119.6	
<b>Educational level:</b>						
Low (0-8 years)	117.4	115.9-118.9	0.371	118.2	116.5-119.9	0.992
Middle (9-12 years)	118.3	116.5-120.2	0.802	118.3	116.4-120.2	0.954
High (≥13 years)	118.7	116.3-121.1	reference	118.2	115.7-120.7	reference
<b>Income level:</b>						
Low	113.4	111.1-115.8	0.037	113.9	111.5-116.3	0.077

Middle	119.2	118.0-120.4	0.649	119.3	118.1-120.6	0.527
High	118.2	114.4-122.1	reference	118.0	114.2-121.9	reference
<b>Employment status:</b>			<b>0.222 (3)</b>			<b>0.690 (3)</b>
Employed	118.8	117.0-120.6	0.141	118.7	116.8-120.5	0.400
Unemployed	117.4	115.7-119.1	0.564	117.7	115.9-119.5	0.758
Student	120.4	116.9-123.9	0.077	119.8	116.2-123.5	0.289
Retired	116.5	114.1-118.9	reference	117.2	114.5-120.0	reference
<b>No. health visits in the past 12 months:</b>			<b>&lt;0.001 (2)</b>			<b>0.001 (2)</b>
0	126.6	117.0-136.2	0.048	126.3	116.6-135.9	0.064
1-2	122.1	119.7-124.5	<0.001	122.0	119.6-124.4	<0.001
<b>≥3</b>	116.9	115.7-118.0	reference	117.1	115.8-118.3	reference
<b>Overall satisfaction with health services:</b>			<b>&lt;0.001 (2)</b>			<b>&lt;0.001 (2)</b>
Very good/good	119.8	118.6-121.0	0.031	120.0	118.7-121.2	0.036
Average	112.4	110.1-114.6	0.718	112.7	110.4-114.9	0.710
Poor/very poor	113.5	107.9-119.1	reference	113.8	108.2-119.5	reference

\* Range of the overall summary score from 37 (minimal competencies) to 185 (maximal competencies).

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

## Discussion

Findings from this survey provide useful information on the level of skills, abilities and competencies of family physicians from primary health care users' perspective in post-war Kosovo. The assessment instrument administered in our study sample showed a very high internal consistency, which was similar in male and female participants. As a matter of fact, the overall internal consistency in our survey (Cronbach's alpha=0.96) was higher than in a prior cross-cultural adaptation exercise conducted in Kosovo, which reported an overall Cronbach's alpha=0.88 (11). In addition, the internal consistency in the current study conducted in Kosovo was higher than in a previous validation study conducted in Albania (9). In our study, the reliability of the tool (i.e. the internal consistency) was similar in both sexes, a finding which is basically compatible with a previous report from Albania (9).

The overall level of competencies of family physicians – as assessed by the summary score of the 37-item instrument – was quite high in our study which included a nationwide representative sample of primary health care users in Kosovo. There were no sex-differences with regard to the perceived levels of family physicians' competencies according to patients' standpoint. As pointed out earlier, this finding related to a high level of family physicians' knowledge and competencies is in line with the very positive assessment of the quality of primary health care services among our study participants (13). Thus, in our study, 75% of participants perceived as “good” or “very good” the medical encounter, a finding which is quite different from a previous study conducted in Gjilan region, Kosovo, in 2010 including a representative sample of 1039 primary health care users (14). In this survey, patients' evaluation of primary health care services was assessed through EUROPEP, a 23-item instrument tapping different aspects of the medical encounter. Findings from this study indicated that considerably fewer primary health care users in Kosovo were satisfied with the overall medical encounter compared with their European counterparts (14). However, there are differences between the two studies: our survey included a nationwide representative sample in contrast with the previous study confined to Gjilan region only (14). Furthermore, we assessed only the self-perceived level of competencies of family physicians from patients'

perspective. On the other hand, the prior survey conducted in Gjilan region included other important dimensions of the quality of primary health care services which are not related to the level of knowledge, skills and competencies of health care professionals (14).

Furthermore, the overall level of competencies of family physicians in our study was higher compared to the previous validation study (cross-cultural adaptation) which was conducted in a sample of 98 primary health care users in Kosovo (11). In addition, the overall summary score in our study was particularly higher compared to prior reports from the neighboring Albania, where a similar survey employing exactly the same instrument was conducted (9,10).

In our study conducted in Kosovo, the level of skills, abilities and competencies of family physicians as assessed by patients' perspective was positively related to income level, in contrast with the Albanian study which reported lack of associations with socioeconomic characteristics of study participants (9). Nonetheless, there was no evidence of relationship with educational attainment in the current survey, too.

Future studies in Kosovo and Albania should compare primary health care users' assessment scores with the self-assessed scores of their respective family physicians in order to identify potential gaps in the perceived levels of skills and competencies. As argued earlier, primary health care users' viewpoints about the quality of health care services including the skills and competencies of their respective family physicians may vary significantly from the self-perceived level of competencies of health care professionals themselves (13). Competencies are considered as composites of individual attributes including knowledge, skills and attitudes that represent context-bound productivity (15). However, patients' viewpoint on productivity may differ considerably from providers' perspective. Hence, future studies in Albanian settings and elsewhere should explore this important issue in a robust manner.

In conclusion, findings from this nationwide survey conducted in transitional Kosovo provide useful information on the level of skills and competencies of family physicians from primary health care users' perspective. Nonetheless, findings from this survey should be replicated in future studies in Albania and Kosovo.

### **Source of support**

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**Conflicts of interest:** none declared.

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## **ORIGINAL RESEARCH**

### **Seasonal variations of schizophrenic patients in emergency departments in Sofia, Bulgaria**

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## Abstract

**Aim:** The purpose of this study was to reveal the seasonal distribution of emergency department visits of schizophrenic patients in Sofia, Bulgaria.

**Methods:** We collected daily data for visits of patients with schizophrenia, schizotypal and delusional disorders in the emergency center of the regional dispenser for mental disorders in the city of Sofia for the period 1998-2003. The total number of emergency visits was 5723 (mean daily visits:  $5.04 \pm 2.4$ ). T-test was used to compare the monthly and seasonal distribution of visits.

**Results:** The season with the highest levels of emergency visits was summer, and the lowest levels were observed in winter ( $P < 0.0001$ ). Spring and autumn had intermediate values close to the mean value, and significantly differentiated from winter values. The month with the highest admission rates was September, followed by May and the three summer's months. The lowest levels were observed in December, October and January, with statistically significant differences observed between the values of all the three months. Differences between July values compared with December and October values were significant, but not with January values.

**Conclusion:** The study showed significant seasonal and monthly differences in emergency schizophrenics' visits. The data confirm the outcome of similar studies conducted in countries with temperate climate in the Northern Hemisphere. These results could prove useful for psychiatrists, public health specialists, and governmental authorities dealing with team planning and prevention programs in the field of psychiatry.

**Keywords:** month, schizophrenia, season.

## Introduction

Schizophrenia is a mental disorder characterized by enormous societal and economic costs due to the extensive therapeutic care and loss of economic productivity, as well as personal suffering and stigma which often affect the patient and his/her family for most of the patient's life. As for schizophrenia patients, there is still no cure, the research of etiologic factors, particularly environmental ones that could be avoided and used in effective prevention programs, is essential (1).

Many studies have demonstrated evidence of seasonal patterns in the incidence of psychotic disorders, and schizophrenia in particular. It is known since the time of Esquirol (1838) that the number of patients admitted in mental hospitals increases in summer months and decreases in winter (1). Most of the studies for seasonal distribution of hospital admissions in schizophrenia also report summer peaks (2,3), some of these for female patients only (4).

Shiloh et al. (5) conducted research on admissions of schizophrenia and schizoaffective disorder patients to Tel-Aviv's seven public psychiatric hospitals during 11 consecutive years. They found that the mean monthly admission rates are significantly higher during the summer (for schizophrenia patients) and fall (for schizoaffective patients).

Clarke et al. (6) studied first admissions for the diagnosis of schizophrenia, citing April and October as peak months.

In a few publications (7-10), no significant difference between admissions in various seasons was observed. Eastwood and Stiasny (7) failed to replicate the summer peak in the admissions for schizophrenia in Ontario, Canada. Partonen and Lonnqvist (8), in a study of 295 schizophrenic patients, also reported no significant seasonal variation of admission with schizophrenia (cited by 9). De Graaf et al. (11) did not find seasonal variations for schizophrenia. The authors concluded there are only limited seasonal variations in mental disorders in general population studies, at least in countries with a mild maritime climate.

It is interesting that while most of the studies conducted in the Northern Hemisphere found summer peaks in hospital admissions for schizophrenia, results from three studies in the Southern Hemisphere show converse results – winter peaks (9,12,13). Owens and McGorry (13) analyzed data for six years and found that only male cases of schizophrenia showed a significant seasonal distribution in the dates of onset of symptoms, with a peak in August. The other two studies: Davies et al. (12) in first episode schizophrenia (strongly visible for the males, but the pattern for females also displayed annual periodicity) in Queensland, Australia and Daniels et al. (9) in male patients with schizoaffective disorder in Tasmania also showed austral winter peaks in admission data.

While the problem of seasonal admissions of patients with schizophrenia has been widely discussed in Western Europe, America and Australia, in Eastern Europe it has been neglected. In this region, we are only familiar with research conducted in Poland by Kotsur and Gurski, where the authors confirmed the presence of seasonality in admission of schizophrenic patients (14). We are not aware of any published research on this subject in Bulgaria, which makes the present study important as a contribution to the scientific literature on the problem in the country and in the South East Europe (SEE) region. Its findings could also raise the awareness of the problem of health care management for psychiatric patients in SEE countries besides Bulgaria.

The aim of the present research was to study the seasonal distribution of emergency department visits (not planned visits) of schizophrenic patients in the city of Sofia, Bulgaria (42°40' North latitude, 23°18' East longitude).

## Methods

We collected daily data for visits of patients with schizophrenia, schizotypal and delusional disorders (F20-F29, ICD-10) in the emergency center of the regional dispenser for mental disorders in the city of Sofia for the period 1 January 1998 – 30 June 2003. The total number of emergency visits of schizophrenic patients was 5723 (mean daily visits:  $x = 5.04$ ,  $\sigma = 2.4$ ). **The total number of**

analyzed days was 1135 (data was missing for a part of the period). Data was categorized by months and then by meteorological seasons – the Winter season defined as December, January and February; the Spring season as March, April and May; the Summer season as the months of June, July and August; and the Autumn (Fall) season as the months of September, October and November.

Because of missing information for some of the days during the period, the mean *daily* (not monthly) values were calculated for the particular month and season, and then the values were compared by using *t*-test.

Mathematically, this method could be used by application of the following formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_{1,2}}{n_1} + \frac{\sigma_{2,2}}{n_2}}}$$

where,  $\bar{x}_1$  and  $\bar{x}_2$  are the mean arithmetic values of the two samples,  $\sigma_1$  and  $\sigma_2$  are the dispersions of the two samples, and  $n_1$  and  $n_2$  are the numbers of the two samples.

Results obtained by *t*-test were compared with table values, which show the probability connected with the zero-hypothesis. For this purpose, the degrees of freedom are calculated using the following formula:

$$K = n_1 + n_2 - 2$$

The calculated value of the degree of freedom was subsequently compared with the table critical value. If the *t*-test value is lower or equivalent to the critical value, then it is accepted that there are occasional differences between the two samples. If the *t*-test value is higher than the critical value it is accepted that the differences between the two samples are statistically significant, thus rejecting the zero-hypothesis.

## Results

The season with the highest levels of emergency visits was summer ( $\bar{x} = 5.44$ ) and the lowest levels were observed in winter ( $\bar{x} = 4.63$ ) (Figure 1), with statistically significant differences between these two seasons ( $t = 4.12^*$ ,  $p < 0.0001$ ) (Table 1).

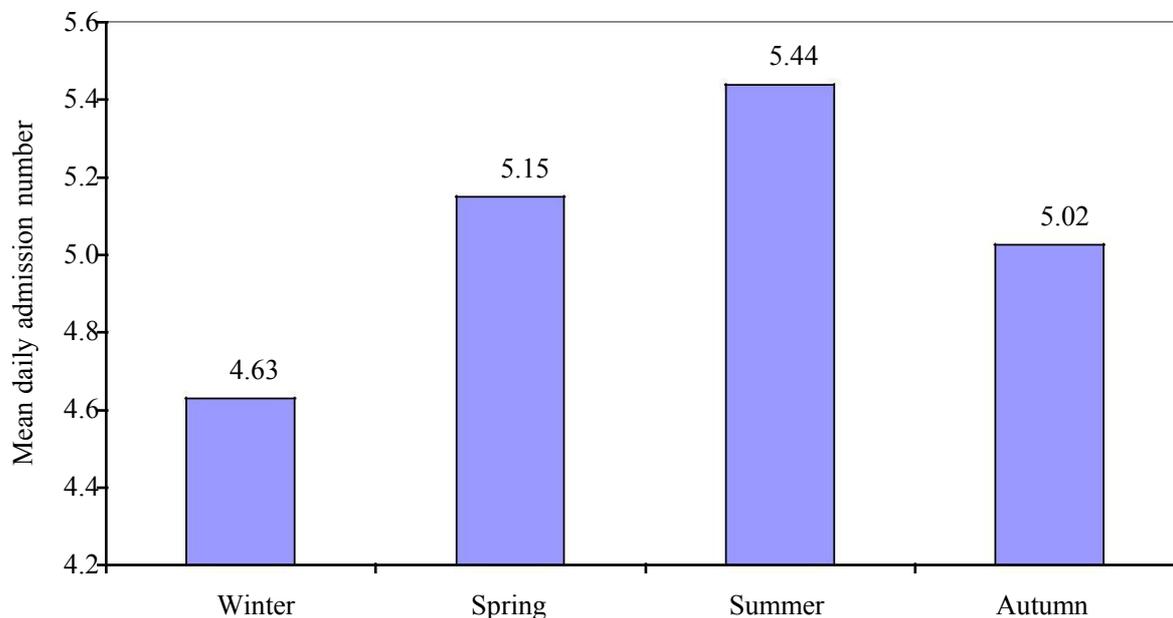
Spring and autumn had intermediate values close to the mean value (respectively, 5.15 and 5.02). Spring and autumn values also significantly differentiated from winter values ( $t = 2.78^*$ ,  $p = 0.006$  and  $t = 2.07^*$ ,  $p = 0.035$ , respectively) (Figure 1).

**Table 1. Comparative analysis of the mean seasonal visits of schizophrenic patients in the emergency department of the regional dispenser for mental disorders in Sofia, Bulgaria, January 1998-June 2003**

Season	Winter	Spring	Summer	Autumn
Winter	-			
Spring	2.78*	-		
Summer	4.12*	1.36	-	
Autumn	2.07*	0.63	1.95	-

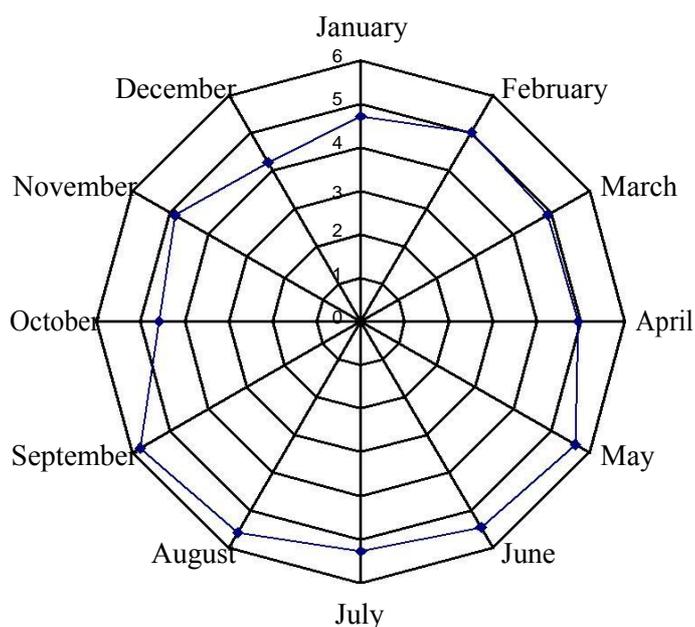
\* The quotients marked with an asterisk are statistically significant ( $p < 0.05$ ).

**Figure 1. Seasonal patterns of admissions of schizophrenic patients in the Emergency center of the Regional dispenser for mental disorders in the city of Sofia**



The month with the highest admission levels was September ( $\bar{x} = 5.79$ ), followed by May ( $\bar{x} = 5.63$ ), and the summer months (August, June and July). The lowest levels were observed during the cold months: December ( $\bar{x} = 4.22$ ), followed by October ( $\bar{x} = 4.58$ ), and January ( $\bar{x} = 4.71$ ) (Figure 2).

**Figure 2. Monthly distribution of visits of schizophrenic patients in the Emergency center of the Regional dispenser in Sofia**



Statistically significant differences were observed between the values of all the three months, with the highest levels compared with the three months with the lowest levels. Differences between July values compared with December and October values were significant, but not with January values (Table 2).

**Table 2. Comparative analysis of the mean monthly visits of patients with schizophrenia in the emergency department of the regional dispenser for mental disorders in Sofia, Bulgaria, January 1998 – June 2003**

Month	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
January	-											
February	1.07	-										
March	0.61	0.35	-									
April	0.78	0.29	0.09	-								
May	2.76 <sup>*</sup>	1.7	1.95	1.99 <sup>*</sup>	-							
June	2.28 <sup>*</sup>	1.22	1.5	1.51	0.47	-						
July	1.86	0.78	1.06	1.05	0.97	0.5	-					
August	2.51 <sup>*</sup>	1.52	1.77	1.79	0.09	0.35	0.83	-				
September	3.04 <sup>*</sup>	2.03 <sup>*</sup>	2.25 <sup>*</sup>	2.3 <sup>*</sup>	0.38	0.84	1.34	0.47	-			
October	0.42	1.33	0.92	1.08	2.84 <sup>*</sup>	2.41 <sup>*</sup>	2.02 <sup>*</sup>	2.62 <sup>*</sup>	3.1 <sup>*</sup>	-		
November	0.59	0.44	0.06	0.16	2.11 <sup>*</sup>	1.64	1.19	1.91	2.41 <sup>*</sup>	0.91	-	
December	1.8	2.64 <sup>*</sup>	2.11 <sup>*</sup>	2.4 <sup>*</sup>	4.1 <sup>*</sup>	3.67 <sup>*</sup>	3.35 <sup>*</sup>	3.8 <sup>*</sup>	4.3 <sup>*</sup>	1.14	2.2 <sup>*</sup>	-

\*The quotients marked with an asterisk are statistically significant (p<0.05).

## Discussion

The results obtained in this study confirm the presence of seasonality in the emergency visits of schizophrenic patients in Sofia. Our findings confirm many of the studies conducted in the Northern Hemisphere (summer peak) in countries with continental temperate climate (3,4,6).

With respect to the factors responsible for the summer excess of admissions, Myers and Davies (15) have suggested a rise in ambient temperature; Parker and Walter (16), the increasing luminance; and Carney et al. (17), the length of day. Social factors, such as summer holidays, “are unlikely to have an effect” (4).

Some publications confirm a straight relationship between the ambient temperature and hospital admissions of patients with diagnosis schizophrenia. Such a relationship was found by Gupta and Murray (18) and Faust (19). Hansen et al. investigated the effect of heat waves on mental health in Australia (temperate climate) and found that hospital admissions were increased by 7.3% during heat waves. Mortalities attributed to mental disorders also increased during heat waves in the age group of 65-74 years and in persons with schizophrenia (20). Shiloh et al. (5) concluded that the mean rates of monthly admissions of patients with schizophrenia correlate with the maximum mean monthly environment temperature (R=0.35). They connect the admission rates with the higher summer temperatures, and conclude that “persistent high environmental temperature may be a contributing factor for psychotic exacerbation in schizophrenia patients and their consequent admission to mental hospitals”.

In previous research (21) using the present data, we also found a positive straight relationship between mean ambient temperature and the emergency visits of schizophrenic patients in Sofia. The analysis of the observed relationship is somehow complicated because of many uncertainties coming from the etiology of the mental disorders. From a physiological point of view, there are still not firm conclusions about the reasons for the outcome of these disorders in psychiatry, and

many theories try to explain these uncertainties. Yet, some conclusions could be made from a theoretical point of view and the literature review.

Since we have been interested in the effect of meteorological factors on the mental crises manifesting, comparatively most important is the theory connected with the fundamental physiological processes in the cerebral cortex – as we are interested in the changeable side of environmental factors influencing the damaged human psyche. First, the Russian scientist Pavlov developed on a theoretical level his hypothesis in relation to the concept of the so-called “Patho-dynamical structures” (“sick point”). The patho-dynamical structure is characterized by a change in the ratio between the basic neural processes – excitement and suppression, which leads itself to the development of phase states. Depending on the structures involved in the pathological process, the external manifestations of the disorders are different (22).

With respect to schizophrenia, strategic guidance for the interpretation of the impact of the ambient temperature on the occurrence of mental crisis could be made by applying the theory of Pavlov. According to him, the main emphasis should be placed on spilled retention, which covers the cortex and sometimes spread on the sub-cortex and brain stem departments, as well as the transition between wakefulness and sleep phases. The main reason for the increased retention of hemispheres in schizophrenia, the Russian scientist sees, is the weakness of the nervous system, when multiple stimuli from the environment are super strong, causing over the limit detention. Such detention in some departments of the brain can lead to release and positive induction of others, and ultimately to a distortion of the interaction of brain structures, such as the relationship between signaling systems, bark and under-bark (cited by 22). Considering that the ambient temperature has a direct impact on the physiological processes in humans by thermo-receptors, it could be expected that its impact will play the role of these super strong as – Pavlov calls them – stimuli. They act as stressors on the body – especially the nervous system – and consequently, in combination with other stimuli (predominantly of the social character), lead to disturbance of the balance and induce psychological crisis.

### **Conclusion**

Our study shows significant seasonal and monthly differences in emergency visits of schizophrenia patients. The results confirm the outcome of many other studies conducted in countries with temperate climate in the Northern Hemisphere.

Results from this study could be useful for psychiatrists and medical staff working in emergency centers and mental health hospitals, public health specialists and governmental authorities dealing with team planning and prevention programs in the field of psychiatry.

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## ORIGINAL RESEARCH

### **Assessment of knowledge, attitudes and practices about public health nutrition among students of the University of Medicine in Tirana, Albania**

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## **Abstract**

**Aim:** the aim of this survey was twofold: (i): to assess medical students' knowledge, attitudes and practices regarding nutrition in general, in order to identify their level of competences in the field of nutrition which will be useful in their future role of providers/health care professionals, and; (ii) to assess the knowledge, attitudes and practices regarding the discipline of public health nutrition in order to identify the needs for improving the curriculum of this subject in all the branches of the University of Medicine in Tirana.

**Methods:** A cross-sectional study was conducted in June-July 2013 including a representative sample of 347 students at the University of Medicine in Tirana, Albania (61% females and 39% males; overall mean age: 23±2 years; response rate: 87%). A nutritional questionnaire, adopted according to the models used in previous international studies, was used to assess the level of knowledge, attitudes and practices among the university students.

**Results:** Overall, about one third of the students was not satisfied with the quality and quantity of nutritional education and demanded a more scientifically rigorous curriculum. In general, students' knowledge about infant feeding practices was adequate. However, there were gaps in the students' knowledge regarding the commencement of breastfeeding, or the duration of exclusive breast-feeding. Furthermore, there was evidence of an insufficient level of knowledge among students regarding diet and nutrition in general and their health impact, especially on development and prevention of chronic diseases.

**Conclusion:** This survey identified significant gaps in the current curriculum of public health nutrition at the University of Medicine in Tirana. Our findings suggest the need for intervention programs to improve both the quantitative and the qualitative aspects of nutrition curricula in all the branches of the University of Medicine Tirana, in accordance with the professional expectations of this teaching institution, as well as the urge for a movement towards a more integrated curriculum and problem-based learning approach.

**Keywords:** Albania, diet, knowledge, nutrition, students, university of medicine.

## **Introduction**

It is argued that the amount of nutritional education in the teaching curricula of different medical schools remains inadequate and does not meet the needs of this important area of health sciences (1,2). Hence, many studies show that family physicians generally have little training in nutrition (3-5). Furthermore, several studies have shown that the vast majority of medical students and incoming interns are dissatisfied with their education in medical nutrition and feel unprepared to counsel patients on nutritional topics (6-8). Therefore, it is largely recognized that there is a critical need for improvements of teaching programs related to nutrition in medical schools and public health schools along with an increased education of the general population at large (9-11).

Public health nutrition is a discipline introduced already in all branches of the University of Medicine in Tirana, the Albanian capital. However, there is no scientific evidence regarding the level of attitudes and knowledge in this field among the students at all levels and branches of this teaching institution in Tirana, which is the only Medical University in Albania.

In this context, the aim of this survey was twofold: (i): to assess medical students' knowledge, attitudes and practices regarding nutrition in general, in order to identify their level of competences in the field of nutrition which will be useful in their future role of providers/health care professionals, and; (ii) to assess the knowledge, attitudes and practices regarding the discipline of public health nutrition in order to identify the needs for improving the curriculum of this subject in all the branches of the University of Medicine in Tirana.

## **Methods**

A cross-sectional study was conducted in June-July 2013 including a representative sample of 347 students at the University of Medicine in Tirana, the capital of Albania.

### ***Study population***

The study population consisted of a simple random sample of 347 students (out of 400 invited; response rate: 86.7%) of the University of Medicine in Tirana pertinent to the following branches: Medicine (26.8%), Nursing (32.9%), Pharmacy (21.9%) and Dentistry (18.4%). The sampling frame consisted of a list of all students who had undertaken a course on public health nutrition (280 medical students; 110 dentistry students; 108 pharmacy students; 312 nursing students). The response rate was somehow lower among the medical students (81.5%) compared with students from the other branches. On the other hand, the overall response rate was similar among male and female students.

### ***Data collection***

A nutritional questionnaire, adopted according to the models used in previous international studies, was used to assess the level of knowledge, attitudes and practices among the university students.

The first part of the questionnaire concerned the attitudes of the students about nutritional education in their respective faculties/schools. The attitudes were measured by means of an indicative scale from 1 to 5 regarding students' concordance with several statements (1= strongly disagree; 5= strongly agree) (7).

The second part of the questionnaire concerned the level of knowledge of the students about nutrition in general (4,5).

### Data analysis

SPSS (Statistical Package for Social Sciences) version 19.0 was used for data analysis. Data were presented as frequency tables (for categorical variables) and as measures of central tendency (mean scores) [for numerical variables].

### Results

Overall, the survey sample included 136 (39.2%) male students and 211 (60.8%) female students (overall mean age: 22.8±2.1 years).

#### *Students' attitudes about their education in the discipline of nutrition*

Overall, the students were somewhat satisfied with the quantity (mean score: 3.3; range from 1 [lowest] to 5 [highest]) and quality (mean score: 3.2) of the nutritional education in the course of their studies (Table 1). Students reported that more time should have been dedicated to the topic of nutrition at the University of Medicine in Tirana (overall mean score: 3.5), especially including more material relevant to the personal health and wellbeing (mean score: 3.8). Conversely, students were quite neutral regarding the scientific rigor of the teaching curriculum (overall mean score: 2.9).

**Table 1. Students' attitudes about their education in the discipline of nutrition**

Students' attitudes	Total (N=347)	Medicine (N=93)	Dentistry (N=64)	Pharmacy (N=76)	Nursing (N=114)
I am satisfied with the <u>quantity</u> of my nutrition education.	3.26	2.69	2.81	3.47	3.83
I am satisfied with the <u>quality</u> of my nutrition education.	3.18	2.71	2.84	3.22	3.71
My medical school nutrition curriculum should have had more time specifically dedicated to the topic of nutrition (independent of organ system-based studies).	3.46	3.67	3.42	3.70	3.17
My medical school nutrition curriculum should have had more nutrition content formally integrated into the organ system-based courses.	3.38	3.91	3.36	3.21	3.07
My medical school nutrition curriculum should have included more online materials available for independent study.	2.90	3.32	2.52	3.05	2.67
My medical school nutrition curriculum should have included more material relevant to my personal health and wellbeing.	3.80	4.31	3.81	3.37	3.68
My medical school nutrition curriculum should have been more scientifically rigorous.	2.89	3.32	3.39	2.58	2.46

Students of the Faculty of Medicine were the most unsatisfied group with regard to the quantity (mean score: 2.7) and quality (mean score: 2.7) of the information obtained in the nutrition course, considering that:

- More time should be dedicated to the topic of nutrition in the course of their studies (mean score: 3.7);
- More nutrition content should be formally integrated into the organ system-based courses (mean score: 3.9);
- The curriculum should include more material relevant to personal health and well-being (4.3);

- In addition, medical students felt that the teaching curriculum should be more scientifically rigorous (mean score: 3.3) [Table 1].

However, almost similar attitudes were encountered among the students of the Faculty of Dentistry, but their mean scores were slightly higher compared to the students of the Faculty of Medicine.

Unlike the students of the Faculty of Medicine and Dentistry, students of the Faculty of Pharmacy appeared to be more satisfied with the quantity (mean score: 3.5) and the quality (mean score: 3.2) of the nutritional education; nonetheless, they considered that more time should be dedicated to the topic of nutrition in the course curriculum (mean score: 3.7), but were generally satisfied regarding the scientific rigor of nutrition curriculum (mean score: 2.6). Conversely, students of the Faculty of Nursing were the most satisfied group with regard to the quantity (mean score: 3.8) and quality (mean score: 3.7) of the nutritional education in their branch. Their most obvious demand, however, was that more material relevant to personal health and wellbeing should be included in the teaching curriculum (mean score: 3.7) [Table 1].

Overall, about one third of the students was not satisfied with the quality and quantity of nutritional education and demanded a more scientifically rigorous curriculum.

Three out of four students demanded a more practical and useful curriculum regarding personal health and well-being; more than half of the students demanded an integrated curriculum into the organ system-based; and half of the students suggested that more time should be dedicated to the teaching curriculum independent of organ system-based studies (Table 1).

### ***Students' knowledge about infant feeding practices***

Overall, the level of students' knowledge about infant feeding practices was satisfactory, as the percentage of correct answers for every question was in the range from 70%-92% (Table 2).

**Table 2. Students' knowledge on infant feeding practices**

<b>Item</b>	<b>Correct</b>	<b>Wrong</b>	<b>Don't know</b>
According to WHO, the optimal duration for breastfeeding an infant is a minimum of twelve months.	71.8%	21.3%	6.9%
Infant formula contains all ingredients found in human breast milk.	1.4%	97.1%	1.4%
Infants consuming breast milk have fewer ear infections than infants consuming formula.	91.9%	4.6%	3.5%

The percentage of wrong answers was higher among the students of the Faculty of Pharmacy, followed by the students of the Faculty of Dentistry (29.7% and 7.8% respectively).

About 82% of the students knew “*the most appropriate age to introduce other foods in the infant's diet*”, whereas one out of three students of the Faculty of Dentistry gave a wrong answer (data not shown).

Regarding the “*commencement of breastfeeding*”, 70% of the students did not know the recommended initiation of breastfeeding, which was especially apparent for students of the Faculty of Nursing and Medicine (80% and 76%, respectively), although the nutrition curriculum of these two faculties regarding infant feeding practices is much more expanded than the other two faculties (data not shown in the tables).

Most of the students (about 77%) stated that exclusive breast feeding is important because “*breast milk is the ideal food*”, 10% of the students considered that “*breastfeeding creates a*

physical/spiritual bond between mother and baby”, and 9% of the students believed that “breastfeeding protects the mother from pregnancy”.

Regarding the duration of exclusive breastfeeding, the opinion of the students was divided between the period of 6-9 months, and only 1.3% of the students considered that “breastfeeding should not be extended more than 1 month” (not shown).

### **Students’ knowledge on the health impact of diet and nutrients**

Regarding the questions that aimed at assessing the students’ general knowledge about the health impact of diet and nutrients, students of the Faculty of Medicine, generally, exhibited the highest level of knowledge compared to the other branches (Table 3).

Especially, medical students reported correctly on the following: “the nutrient that helps prevent thrombosis” (100%); “the nutrient closely related to the prevention of neural tube defects” (97%); “zinc is not an antioxidant” (87%); and “potassium has protective effect against hypertension” (75%). However, none of them knew that “excess proteins promote loss of Ca”; “Albanians are advised not to consume more than 30% fat” (8%); and “fruits and vegetables have a preventive role in the development of some types of cancer” (10%) [Table 3].

**Table 3. Students’ knowledge about diet and health**

<b>Item</b>	<b>Total</b>	<b>Medicine</b>	<b>Dentistry</b>	<b>Pharmacy</b>	<b>Nursing</b>
A nutrient believed to help prevent thrombosis is:	omega-3 fat	100	28.1	50	28.9
Excess of which nutrient may increase body calcium loss?	proteins	0	4.7	7.9	14
What is the type of dietary fiber helpful in lowering the blood cholesterol level?	soluble fiber	67.7	42.2	28.9	15.8
The major type of fat in olive oil:	monounsaturated fat	54.8	31.2	22.4	16.7
Compared with unprocessed vegetable oil, hydrogenated fats contain:	more trans fats	37.6	9.4	42.1	16.7
The nutrient is protective against hypertension	potassium	75.3	14.1	44.7	45.6
If a person habitually consumes 10 tablets a day of vitamin mineral supplements, which nutrient is least likely to cause toxicity	vitamin E	66.7	21.9	39.5	24.6
The most concentrated source of vitamin B12 is	Meat	43	6.2	18.4	31.6
Which substance raises the blood HDL-cholesterol level	alcohol	41.9	9.4	17.1	22.8
Nutrition Recommendations for Albanian recommends that the diet should contain the following percentage of energy as fat	under 30% of daily energy	7.5	9.4	25	21.9
Nutritional recommendations for Albanian recommends that the diet should contain the following type and percentage of salt	no more than 6 g iodized salt	44.1	3.1	19.7	37.7
A type of food believed to have a preventive effect on varioustypes of cancer is	Fruits and vegetables	9.7	34.4	57.9	41.2
The number of kilocalories in one gram of fat is	9 kkal	100	96.9	96.1	94.7
Which of the following is not an antioxidant nutrient	Zinc	86	46.9	80.3	48.2
The nutrient strongly associated with the prevention of neural tube defects is	Folate	96.8	73.4	77.6	71.1

\* Percentages of correct answers.

## Discussion

Our findings indicate that students of the University of Medicine in Tirana are not sufficiently satisfied with the quantity and quality of the knowledge obtained on public health nutrition, demanding more time to be dedicated to the topic of nutrition in the undergraduate curriculum including especially more material relevant to personal health and wellbeing. Such requirements and demands were more pronounced among students of the Faculty of Medicine and Dentistry.

Students' knowledge about infant feeding practices were relatively satisfactory among the students of the Faculty of Medicine, and less so among students of the other faculties. However, there were also apparent gaps in the knowledge of medical students regarding the commencement of breastfeeding, or the duration of exclusive breastfeeding. Our findings in this regard are compatible with previous reports from studies conducted elsewhere (12-14).

Regarding students' general knowledge about diet and its impact on the development or prevention and treatment of diseases, especially of chronic diseases, it was often encountered an overrated concept about the role/influence of the dietary fat and individual health, suggesting insufficient knowledge among students regarding the specific role and impact of carbohydrates and proteins. Similar findings have been previously reported in the UK (13,14), Canada (15,16) and the USA (17).

On the other hand, students included in the current survey did not have updated information regarding the "*Albanian Recommendations for a Healthy Nutrition*", which points to the need for case-based teaching, and updated scientific rigor.

Overall, the current survey identified gaps in the current curriculum of public health nutrition which suggests the need for appropriate changes and amendments to the curriculum in all the branches of the University of Medicine in Tirana (General Medicine, Public Health, Nursing, Pharmacy and Dentistry). From this perspective, our study provides useful baseline information which should be eventually used to close the knowledge and competence gaps in the current teaching and training programs offered by the University of Medicine in Tirana.

In addition, the assessment of knowledge, attitudes and practices of the students on nutritional aspects in general is a basic precondition for understanding their competences and roles as future health care providers and health professionals, hence, evaluating healthy nutrition as an important element in the prevention and treatment of a number of non-communicable diseases which are currently highly prevalent in Albania (5,18). From this point of view, our study makes a useful contribution in the Albanian context.

In conclusion, our study suggests the need for intervention programs to improve both the quantitative and the qualitative aspects of nutrition curricula in all the branches of the University of Medicine Tirana, in accordance with the professional expectations of this teaching institution, as well as the urge for a movement towards a more integrated curriculum and problem-based learning approach.

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## REVIEW ARTICLE

### **A practical and applied approach to assessing the cross cutting nature of child injury prevention as a basis for policy making at the local level**

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## **Abstract**

**Aim:** Risk factors for child injury are multi-faceted. Social, environmental and economic factors place responsibility for prevention upon many stakeholders across traditional sectors such as health, justice, environment and education. Multi-sectoral collaboration for injury prevention is thus essential. In addition, co-benefits due to injury prevention initiatives exist. However, multi-sectoral collaboration is often difficult to establish and maintain. We present an applied approach for practitioners and policy makers at the local level to use to explore and address the multi-sectoral nature of child injury.

**Methods:** We combined elements of the Haddon Matrix and the Lens and Telescope model, to develop a new approach for practitioners and policy makers at the local level.

**Results:** The approach offers the opportunity for diverse sectors at the local level to work together to identify their role in child injury prevention. Based on ecological injury prevention and life-course epidemiology it encourages multi-disciplinary team building from the outset. The process has three phases: first, visualising the multi-sectoral responsibilities for child injury prevention in the local area; second, demonstrating the need for multi-sectoral collaboration and helping plan prevention activities together; and third, visualising potential co-benefits to other sectors and age groups that may arise from child injury prevention initiatives.

**Conclusion:** The approach and process encourages inter-sectoral collaboration for child injury prevention at the local level. It is a useful addition for child injury prevention at the local level, however testing the practicality of the approach in a real-world setting, and refinement of the process would improve it further.

**Keywords:** co-benefits, inter-sectoral collaboration, prevention and control, wounds and injuries.

## **Introduction**

It is far from trivial to reiterate how devastating child injury is to the individual, family and society. Among the measurable costs, are loss of life, long and short-term disability, psychological consequences, and financial costs (1). In addition, child injury remains the leading cause of death and a major cause of disability for children aged 5–19 in the European Region (2). Despite this varied and heavy burden, funding for prevention is comparatively low (3), and capacity and leadership resources, in terms of adequate numbers of personnel and availability of the relevant skills set, are limited (4).

The determinants of child injury are multiple, broad, and not limited to the health sector (2,5). Thus, in order to efficiently direct and fund child injury prevention, one must account for the cross-cutting, multi-sectoral determinants that result from a complex interplay between human factors and those in the physical and socio-cultural environments.

Since the multiple determinants of child injury cannot be addressed by the health sector alone, a whole-of-government approach is required—vertically, from international politics to local decision makers, and horizontally, across policy fields such as health, transport, housing, justice and education. Preventive action must also work across society, employing a whole-of-society approach engaging actors and stakeholders within government, civil society, and the private sector (2,6).

Though inter-sectoral co-operation is essential, it is notoriously challenging (7,8). It is often difficult to engage relevant stakeholders and maintain their co-operation throughout the process from policy making through to implementation and evaluation. Additionally, the complexity of government systems, where roles and responsibilities are divided into traditional silos (e.g., health, transport, education), and where responsibility and power are split between national, regional and local levels, can further hinder cooperation (9). Thus, due to its complexity, child injury is one of the so-called ‘wicked’ problems of public health (7). However, its cross-cutting nature offers broad scope for interventions to result in or contribute to multi-sectoral co-benefits (10).

In this paper we focus on the role of regional or local level decision makers and propose a model to facilitate the decision making process for the cross cutting issue of child injury prevention.

## **Existing models for injury prevention**

Several models to guide injury prevention have been proposed, including those addressing the multiple determinants of injury (11,12) intervention planning (13,14) and inter-sectoral collaboration (15). These models provide useful theoretical frameworks to address injuries and their prevention. However, they do not address the specific nature of child injury and in some cases may be challenging for use at the local level.

Child injury prevention requires specific, directed attention. Children participate in environments largely designed for adults where their physical and cognitive characteristics make them more vulnerable to injury. Physical and cognitive developmental stages precipitate different periods of injury susceptibility. Age is therefore an important factor in child injury prevention and models used must have the flexibility to address this heterogeneous group. Children are also highly dependent upon the care and protection of adults, so factors affecting an adult’s capacity to supervise children can directly affect them (16,17). General injury prevention initiatives, designed for adults, do not always protect children to the same extent (18,19).

In terms of governance for child injury prevention, a lack of leadership and capacity at the national level such as dedicated government departments or ministries or a lack of a specific

focal point within key departments for child safety has been identified (20). It is likely that if this is the situation at the national level that there is an even greater potential for lack of capacity at the regional or local level where much decision making for health lies (21).

To our knowledge, no existing model or approach adequately addresses child injury, while simultaneously providing a practical, multi-sectoral process for practitioners and policy makers at the local level to use to guide prevention efforts. In order to adequately assess the specificities of child injury and its cross-cutting nature, as well as incorporate the potential

co-benefits into prevention planning, practitioners and policy makers should be able to:

- Examine the issue and visualise the multi-sectoral responsibilities for child injury prevention in the local area
- Demonstrate the need for inter-sectoral collaboration and collective planning of prevention activities
- Identify the scope for co-benefits for other sectors, age groups or health issues arising from child injury prevention initiatives

In this paper we propose a model based upon aspects of the Haddon Matrix (22) and the Lens and Telescope model (23) providing a practical approach and process to meet these requirements for the local level.

### **The local level child injury prevention assessment approach**

The traditional Haddon matrix depicts a time element in the first dimension (vertical axis), dividing factors associated with what Haddon termed the pre-event, event and post-event phases of an injury event. In the second dimension (horizontal axis), of the simplest form of the matrix, are the three vertices of the epidemiological triangle the host (human), the agent (vehicle/vector) and the environment, with environment often divided into social and physical. The Haddon matrix fits well into the traditional public health approach of primary, secondary and tertiary prevention and has been used to explore a variety of aspects of the public health process for injury prevention including assessing risk factors (5,24), identifying preventive strategies and assisting the decision making process (13) and for public health readiness and planning (25,26).

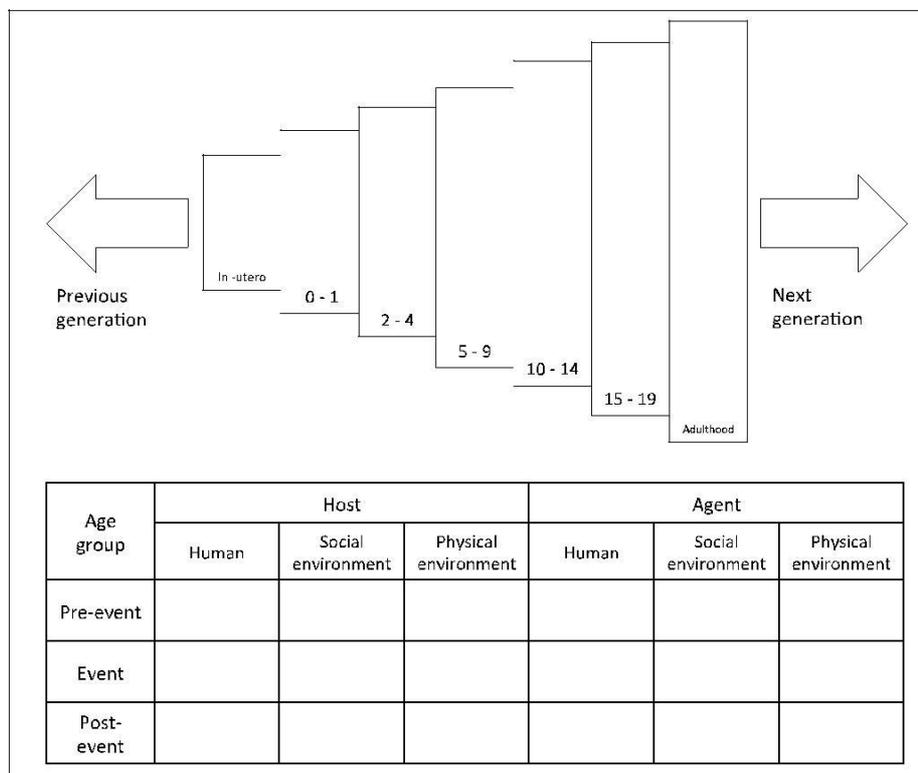
The traditional, nine cell, Haddon Matrix maybe less suited to child injury prevention due to the separation between environment, host and agent. Children's dependence upon adult supervision to secure their environment and their lack of control over the environment is difficult to capture in this version of the Haddon Matrix. Therefore, when developing our approach, we sub-divided the columns, host and agent into factors for human, social and physical environment. This allows the table to capture more detail that maybe particularly relevant for preventing child injury such as factors affecting parental supervision.

The temporal element of injury prevention is well represented in the Haddon Matrix, however circumstances preceding the injury are limited to the pre-event phase. This makes it difficult to differentiate between long standing risk factors such as socio-economic status, and short-term factors such as bad lighting. A further reality of child injury is that the determinants of injury change with age. The inclusion of the life course approach developed in the Lens and Telescope model (23) is intended to provide a visual cue regarding the needs of the different age groups, encouraging one to think of enduring injury determinants such as socio-economic status and parental factors.

The life course aspect of our tool is divided into five specific age groups relevant to child injury, 0-1, 2-4, 5-9, 10-14, and 15-19; with general phases for the foetal phase, adulthood, previous and the next generation. The slices representing age get larger towards older age groups to illustrate the breadth of influence preventive measures could have.

The resulting approach (Figure 1) can be used to examine a specific injury event (e.g., a specific car - pedestrian collision) or a group of injuries (e.g., child pedestrian injuries). Further, in order to include and examine all relevant factors, the matrix (or matrices, if a separate matrix is needed to provide more space) should be completed with factors relevant to each affected person in the injury event. For example, in the case of a car – pedestrian collision, a matrix should be completed accommodating the perspectives of the injured child, the driver, passengers in the car and any other relevant people.

**Figure 1. Local level child injury prevention assessment approach**



**Using the local level child injury prevention assessment approach and process**

The approach and resulting process are intended for use by practitioners and policy makers at the local or regional level. They can be used in three ways: first, to examine and visualise the multi-sectoral responsibilities for child injury prevention in the local area; second, to demonstrate the need for inter-sectoral collaboration and collective planning of prevention activities and third to identify the scope for co-benefits for other sectors, age groups or health issues arising from child injury prevention initiatives.

*Phase one – Examining the issue and visualising multi-sectoral responsibilities*

The approach and process are designed for use in a collaborative setting from the outset. Relevant partners and stakeholders from multiple sectors should contribute throughout the process to map each of the factors that contribute (or could contribute) to the injury event for each person involved in the injury. In line with concepts of life-course epidemiology, the factors should not be confined to the moment the injury occurred but should also include pre-existing factors. The process of eliciting each of these factors aims first, to draw all of the stakeholders together to come to a common understanding of the problem and potential

solutions (7) and second, to identify the many sectors implicated within child injury prevention.

#### *Phase two - Demonstrating the need for multi-sectoral cooperation*

Once factors and involvement of sectors coming out of the injury analysis are identified, users can reflect on them and propose specific evidence based interventions and policies that address these factors and identify the appropriate sectors that would need to be involved. These specifics can then be used to make the case for investment and/or engage additional stakeholders. The integrated life course approach serves as a prompt to ensure age is being taken into consideration as interventions are considered. Potential interventions can then be inserted into an empty matrix in the same way as the factors were placed in phase one.

#### *Phase three – Visualising the scope for co-benefits*

The third phase is designed to help identify potential co-benefits of child injury prevention strategies for other age-groups and issues within and outside the health sector. Co-benefits can be achieved as a result of child injury prevention measures in three ways. First are the physical, economic and societal benefits for the child, family and community as a result of a reduction in intentional and unintentional injury (1,3). Second are co-benefits for the target population or other groups arising as a result of injury prevention initiatives (e.g., the health benefits of swimming lessons or environmental and health benefits of a safer walking environment in terms of a reduction in car use); these are not dependent upon a reduction in injury incidence but are derived from the intervention itself. Third are co-benefits for other groups that can be achieved as a result of the *implementation* of injury prevention strategies (e.g., providing training and employment to distributors of safety equipment).

By reflecting on the age group segments of the approach, users are encouraged to consider the impact on other age-groups and identify which groups might directly and indirectly benefit from child injury prevention interventions and elaborate on these co-benefits. For example, an intervention to improve the walkability of an area surrounding a school would directly benefit age groups 5-9, 10-14 and 15-19 years, but may also benefit the elderly population of that area by providing a safer walking environment.

### **Discussion**

Much responsibility for injury prevention lies with local practitioners and policy makers in terms of choice of intervention and process of implementation. However, for complex ‘wicked’ problems such as child injury, the key stakeholders at the local level are often unaware of their responsibilities for public health and the potential impact of their participation (27). Local government officials have been found to lack awareness of the link between health and non-health sectors, and their experience of inter-sectoral collaboration is often limited (8). A key determinant of success for inter-sectoral collaboration, is the development of a multi-disciplinary team of multiple stakeholders (28,29) to first reach a common understanding of the problem and then, on that basis, to collaboratively design evidence based interventions that are specific and relevant to the needs of the target population (7).

A significant difference between our approach and process and other existing models for child injury prevention is its interactive and collaborative nature. Our approach provides a practical framework to engage diverse stakeholders from the outset. It has been designed to provide a comprehensive approach to child injury prevention in a simple (and familiar) format to maximise output at the local level of governance. The exercise of mapping factors using a matrix that addresses the specific physical and social environments for host and agent

separately helps identify the potential involvement for many sectors and the identification of roles and responsibilities as interventions are selected. A limitation of this approach is that it is unable to quantify the comparative or cumulative impact of the identified risk factors in the local setting. Local knowledge of their relative importance in the target setting is therefore required to weight them appropriately, in terms of importance and prevalence, and to develop a suitable intervention. Additionally, the approach does not help planners/researchers identify what interventions or policies are already in place or how to choose an intervention. However the third dimension of the Haddon Matrix as proposed by Runyan (13) could be used in conjunction with this model to aid intervention choice.

The opportunity to identify the potential co-benefits of injury prevention initiatives offered by this approach is particularly important in the context of advocacy and efforts to secure funds for prevention activities. A lack of funding is a common barrier to adoption and implementation of public health interventions, particularly for complex or wicked problems.

(8) If co-benefits of prevention activities outside the target group or injury domain can be demonstrated, the chances of securing funding may be higher, particularly if the co-benefit addresses a priority area (e.g., obesity or healthy ageing). Our proposed approach and process provide a way of demonstrating the interconnectivity between sectors and therefore the secondary impact child injury prevention strategies may have beyond childhood or outside the injury domain. However, it must be noted that when identifying co-benefits this approach does not offer any quantification of economical or health benefits associated with a given strategy.

The use of a life course model is a central element of our approach. There are several advantages to this: first, it emphasises the importance of a child's age for injury susceptibility and acts as a lens through which to consider relevant factors, particularly when looking at an overall injury issue (e.g., child drowning); second, it accommodates age in the design or choice of preventive interventions; third, it allows analysis of risk factors related to parents or carers and underlying causes; and, fourth, it provides a frame to reflect upon potential co-benefits for other age groups arising from child injury prevention interventions.

Additionally, some interventions in child injury prevention include longer timeframes between intervention implementation and results, especially when addressing the more complex risk factors such as substance abuse and mental health. These are often incompatible with the short-term pressures on policy makers (30). Visualisation of co-benefits using a life-course approach could provide policy makers with solid arguments for the implementation of such interventions.

## **Conclusion**

This approach and three phase process to child injury prevention, based on combining Haddon's matrix with a life course model facilitates stakeholders identification of risk factors and solutions across policy sectors. When done collectively, engaging multiple stakeholders, it should result in a better understanding of the multi-sectoral nature of child injury prevention and the potential roles and responsibilities for the stakeholders at the local area. This, in turn, should assist in the planning of tailored inter-sectoral child injury prevention activities. Further the broadened frame helps identify potential co-benefits across sectors, within and outside the injury domain, which may assist in gaining support for child injury prevention.

This approach and process have been designed to provide a practical and user-friendly methodology to address the inter-sectoral issue of child injury prevention at the local level.

However it is yet to be tested in a real world setting and a study of its efficiency would be a useful addition to this research.

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**Contributorship:** BS developed the idea for the approach and process and all authors contributed to the design. BS led the drafting of the paper and all authors were involved in revising it and approving the final version.

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**REVIEW ARTICLE**

**Neglect, abuse and violence against older women: Definitions and research frameworks**

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### **Abstract**

The aging of the global population with women living longer than men, resulting in the feminization of aging, focuses attention on the intersection of gender and age. Women across the lifespan can be victims of violence but there has been little attention to date to the neglect, abuse and violence against older women. Because of this gap in knowledge and remedies, little is known about neglect, abuse and violence against older women, particularly its prevalence as well as evidence-based prevention and intervention strategies. Several definitions of neglect, abuse and violence are reviewed here, along with conceptual frameworks that operationalize these definitions differently, resulting in differences in findings on prevalence as well as fragmentation in the way that older women victims of abuse are viewed. Three definitions of older adult abuse are discussed, including those formulated by the Toronto Declaration, the National Research Council, and the United States Center for Disease Control. Each focuses on a different aspect of abuse of older women: active ageing, old age dependency, and domestic violence in later life. A fourth conceptual framework, the human rights perspective, shows promise for addressing abuse of older women in a more holistic manner than the other definitions, but is not fully developed as a way of understanding neglect, abuse and violence against older women. This is the first of a four-part series on older women and abuse.

**Keywords:** ageing, elder abuse, neglect, older women, violence.

### **Older women, socio-demographics, and human rights**

Population aging is a global trend that is changing economies and societies around the world (1). In 2012, people aged 60 years and older represented almost 11.5% of the global population and by 2050 this is expected to double to 22%. Older women outnumber older men: in 2012 for every 100 women aged 60, there were 84 men, and for every 100 older women aged 80 and above, there were only 61 men. The feminization of aging, representing the intersection of age and gender, has important implications for policy as the world continues to age. Gender discrimination across the lifespan has a cumulative effect, and neglect, abuse and violence across the lifespan results in a high lifetime rate for older women. Neglect, abuse and violence against older women have been largely overlooked as a focus of research; this is in spite of the fact that unique and compounded disadvantages are experienced by older women (2). Older women aged 60 years and older have been identified as subject to discrimination by the Convention to Eliminate All Forms of Discrimination Against Women (CEDAW) experts in 2010 and by the United Nations (UN) Department of Economic and Social Affairs (DESA) in their 10-year review of the implementation of the Madrid International Plan of Action on Ageing (3). One area of discrimination in the form of human rights violations that has been largely overlooked by policy makers, researchers and advocates for girls' and women's rights is neglect, abuse and violence of older women.

Because of this gap in knowledge and remedies, little is known about neglect, abuse and violence against older women, particularly its prevalence as well as evidence-based prevention and intervention strategies. In November 2013, to begin to address this gap, the UN DESA held an Expert Group Meeting (EGM) inviting researchers and other experts from around the world to New York City to review the state of knowledge, gaps and next steps to address this area of human rights violations against women and older people.

One of the recommendations in the final report, "Neglect, Abuse and Violence Against Older Women", prepared by the UN DESA Department of Social Policy and Development, is that "*while both quantitative and qualitative research have begun to develop salient factors in cultural differences, age-related differences and service needs and gaps for older women victims*" (2), more data are needed both on prevalence as well as practices to prevent neglect, abuse and violence against older women. In addition, unifying themes that connect older women in developing and developed countries, and in both modern and traditional societies, should be identified along with unifying themes that connect women of all ages.

### **Discrimination against older women**

Women across the lifespan can be victims of violence, but neither the women's domestic violence movement nor the aging empowerment movement has mobilized to end violence against older women. While elder abuse has been the object of many studies, abuse of older women has had only modest attention in the gender based literature (4). Older women have lacked status as battered women in domestic violence research and activism. Older women are often excluded in studies of violence against women and often completely absent as though older women do not belong in the category of women.

Older women are often absent from discussions about shelters and hotlines, and there is the lack of a debate on circumstances and special needs of older women victims of abuse that may affect help seeking behavior. However, a gender analysis of violence against women and girls focuses on male dominance and subordination of women, and subordination seems especially relevant for older women (4). Is the women's domestic violence movement ageist? Why haven't older people taken ownership of mistreatment of their peers (5)? Why hasn't the professional leadership in this field joined with older people to form a grass roots movement like the women's movement to speak out against elder abuse? Could social ambivalence

about old age be one reason, and the double jeopardy of sexism and ageism another? Abuse of older women is neglected by advocates of gender equity, women's rights activists and aging advocates. Is it because the link to frailty and dependency makes older abused women appear to lack agency?

### ***Gender inequality and the life course***

The United Nations Special Rapporteur on Violence against Women observes that the inequality and discrimination experienced by women intensifies with old age (6). Discrimination against older women on the basis of age and gender can result in situations where they experience neglect, abuse and violence (7).

### ***Ageism***

Ageism is defined as "*the systematic stereotyping and discrimination against older people because they are old, just as racism and sexism accomplished this with skin color and gender*" (8). Ageism reinforces systems of oppression in two ways. It focuses on individual perspectives and actions and leaves hidden insidious forms of discrimination. Age blindness implicitly uses the privileged as the norm and judges others by that standard (9). Ageism and sexism create a socially constructed dependency in old age of which feminization of poverty is a key factor. These factors make discrimination and disadvantage seem inevitable. For older women, invisibility is symbolic of this process (10). Whittaker (10) suggests that the failure of gender experts to do this analysis is a measure of the entrenched ageism within the women's movement.

### ***Cultural norms and social expectations***

Social expectations and changing social norms can also create a perception of abuse toward older family members (11). In studies of older adult abuse in Asia and South Asia, the daughter-in-law is often identified as an abuser for not serving a traditional role of caregiving in the home while engaging in paid work or a career (12).

### ***Public policy and availability of social and health programs***

Political decisions about social protections for older women, and availability of health, mental health, criminal justice and other resources can limit options within families and communities for addressing issues of neglect, abuse and violence, according to Shankardass (13).

### ***Multi-dimensional nature of neglect, abuse, and violence against older women***

Manjoo (6) argues for a holistic approach to understanding abuse of older women and how to address it. Recognizing intersectionality and the continuum of violence against older women requires analysis of violence in four spheres: violence in the family; violence in the community; violence that is perpetrated or condoned by the State, including custodial settings like care homes and hospitals; and violence in the transnational sphere as it affects migrant, refugee and asylum seeking older women (6).

### ***Gender inclusion***

While abuse can affect all older adults, older women are arguably more likely to experience many of these forms and levels of abuse than older men. First, women live longer and with chronic impairments for which they may need support in the home and community. Second, older women are less likely to have adequate pensions and other benefits than older men, giving them fewer resources to ensure their independence. Finally, women across the lifespan

experience cumulative disadvantages and lower status than men, leaving them more vulnerable to abuse and neglect in old age.

### **Purpose**

The purpose of this series of articles is to discuss the current state of knowledge about abuse of older women. It explores various definitions of neglect, abuse and violence against older adults and discusses whether there are agreed upon definitions of neglect, abuse and violence against older women. It addresses main forms or categories, prevalence and risk factors of neglect, abuse and violence against older women, as well as health consequences of violence and abuse, and data sources along with problems in collecting such information. It also provides an overview of needs of older women survivors of neglect, abuse and violence. It discusses preventive measures to address the issue, presenting evaluations of their effectiveness where available. It provides an overview of main approaches to addressing abuse of older women, and key interventions including policies and programs for the protection of older women victims of abuse along with outcomes where evaluations have been completed. Finally, recommendations are offered for further improvement of policies in these areas.

This paper focuses on definitions of neglect, abuse and violence against older adults based on current conceptualizations of abuse. It proposes that there are three dominant conceptual frameworks for understanding neglect, abuse and violence against older women. These are: older adult mistreatment, informed by social gerontology and using a definition proposed in the Toronto Declaration on Elder Mistreatment (14); older adult protection, informed by geriatrics using a definition that was formalized by the National Research Council (15); and intimate partner violence or domestic violence against older women, informed by feminist gerontology and adapting a definition originally formulated by the USA Centers for Disease Control (CDC) (16). A fourth, a human rights perspective, is an emergent framework for examining abuse of older women, and is currently under development (17) (Bridget Sleaf, Senior Policy Advisor, HelpAge International, Personal Communication, August 8, 2013).

Differing definitions have led to research findings, policy responses, and programs and practices that may appear contradictory and confusing to those not familiar with the field of elder abuse and neglect (18). Each is linked to different assumptions and theoretical explanations for abuse of older women, and interventions including policies, and programs and practices to prevent and end neglect, abuse and violence against older women.

### **Forms of abuse**

Main forms of abuse used to categorize mistreatment of older women include: physical, sexual, psychological (also called emotional, verbal and non-physical) abuse, financial (also called material) exploitation, neglect, and violation of personal rights (19). Different conceptual frameworks use a combination of different forms to operationalize abuse. The Elder Mistreatment and Older Adult Protection frames use most of the forms cited above, with the possible exception of violation of personal rights, sometimes termed social abuse (20). The Intimate Partner Violence (IPV) frame uses physical, sexual, and psychological forms of abuse, and sometimes violation of personal rights, but not neglect and usually not financial exploitation (unless included in a measure of psychological abuse) (16).

*Physical/Sexual:* Some studies of older women and abuse categorize sexual abuse as a sub-set of physical abuse. Physical abuse includes actions intended to cause physical pain or injury to an older adult, such as pushing, grabbing, slapping, hitting, or assaulting with a weapon or thrown object. Sexual abuse can include offensive sexual behaviors as well as physical contact of a sexual nature (14).

*Psychological*: This form of abuse is also called verbal or emotional abuse, which may be further defined as active or passive. This describes actions intended to inflict mental pain, anguish or distress on an older person (19).

Qualitative research studies have examined forms of psychological abuse against women in greater depth. Montminy (21) found 14 types of psychological abuse, which can be active or passive, perpetrated by intimate partners against older women. These include: control, denigrate, deprive, intimidate, threaten, abdicate responsibility, manipulate, blame, harass, negate victim's reality, sulk, infantilize, show indifference, and provoke guilt. In IPV studies, financial exploitation or material abuse (use of property or possessions without victims' permission) can be a subset of psychological abuse. Also in IPV research, psychological abuse may be limited to threats of physical or sexual violence.

*Neglect*: The National Research Council (NRC) definition of elder abuse, with its inclusion of vulnerability as a core concept associated with victims, provides the most explicit link with neglect of older care dependent adults. This definition is further operationalized to include neglect as an "omission by responsible caregivers that constitutes 'neglect' under applicable federal or state law" and caregiver as "a person who bears or has assumed responsibility for providing care or living assistance to an adult in need of such care or assistance" (15). It is further operationalized as refusal or failure of these responsible for providing a care-dependent older adult with assistance in daily living tasks or essential supports such as food, clothing, shelter, health and medical care. This can also include desertion of a care dependent older adult, also called abandonment (14).

There is no overarching theoretical framework for elder abuse (22). This makes it difficult to operationalize neglect of older women as part of a larger discussion of neglect, abuse and violence. In addition, in spite of a general observation that older adult caregiving dyads are most likely female (23), there is a paucity of studies that focus on neglect as a form of elder abuse perpetrated against elderly care dependent women by female formal or informal caregivers. Research and discussions that link caregiving of care dependent older adults and neglect by caregivers in general are either gender neutral or treat gender as a study variable.

*Financial exploitation and material abuse*: This form of abuse describes actions of illegal or improper use of an older person's money, property or assets. Women have been found to be especially vulnerable to this form of abuse and were twice as likely to be victims of financial abuse as men in a recent study conducted in the USA (24). Most victims in this study were between the ages of 80 and 89 years old, lived alone, and had some care needs that required help in their homes.

*Violation of Personal Rights*: Linked to the concept of individual human rights, this form of abuse includes the infringement of personal rights as a form of elder abuse (19). It includes behaviors that violate an older person's right to privacy, right to autonomy and freedom, and right to have access to family and friends. This form of abuse is also known as *social abuse* (20).

### **Definitions, differences and agreements**

Most professionals in the field of elder abuse agree that lack of a generally accepted definition of abuse, mistreatment or maltreatment of older adults is a barrier to understanding this social problem. The lack of a commonly accepted definition of elder or older adult abuse is also a challenge for understanding the abuse of older women from a global perspective. Because definitions tend to use similar language in different frameworks, it can be confusing to differentiate among them. The discussion below attempts to clarify some of this definitional confusion.

### ***Purposes of definitions***

Definitions of elder abuse and neglect are used for research, particularly prevalence and population studies, policy and program development, and practice. Three influential definitions reflecting divergent underlying assumptions about elder abuse and abuse of older women have guided research and policy decision making. They are presented here.

### ***Mistreatment of older adults (elder mistreatment)***

In the Toronto Declaration on the Global Prevention of Elder Abuse, elder abuse is defined as “a single or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust which causes harm or distress to an older person. It can be of various forms: physical, psychological, emotional, sexual, and financial or simply reflect intentional or unintentional neglect” (14). This is linked to the active ageing concept of older adulthood, in which older women and men are considered to have the capacity to be productive contributors to society (25).

This definition originated with a United Kingdom NGO, Action on Elder Abuse in 1995 (26), and was adopted by an expert group on elder abuse from the International Network for the Prevention of Elder Abuse (INPEA) and the World Health Organization (WHO) that met in Toronto, Canada in 2002. Age of the victim is not defined as part of this definition but is usually 60 years of age and older in studies that use this definition, because they tend to focus on older adults living in the community. This definition used in elder abuse research, policy and practice formulation is influenced by social gerontology.

Critics of the WHO definition state that while it has become popular for policy purposes, it is difficult for researchers to operationalize and includes data elements, such as ‘appropriate action’, ‘expectation of trust’, and ‘distress’, which are largely subjective. The use of ‘a single or repeated acts’ as a baseline measure has been identified as ambiguous (26). ‘Trusting relationship’ is a key concept in both Elder Mistreatment and Older Adult Protection frameworks. This speaks to the nature of the relationship between older adult victims and perpetrators of abuse: crimes committed against older women by strangers are not defined as elder abuse in these research frames. This is not the case in IPV research, where rape and other forms of violence can be perpetrated against girls and women of all ages through casual dating experiences and by strangers.

### ***Abuse of vulnerable adults (older adult protection)***

Abuse of vulnerable older adults refers to “intentional actions that cause harm or create a serious risk of harm (whether or not harm is intended) to a vulnerable elder by a caregiver or other person who stands in a trust relationship to the elder, or failure by a caregiver to satisfy the elder’s basic needs or protect the elder from harm” (15).

This definition of elder abuse was developed by an expert panel (Panel to Review Risk and Prevalence of Elder Abuse and Neglect) convened by the National Research Council of the United States National Academy of Science for the purpose of creating a suggested uniform definition and operationalized data elements on elder abuse for research, policy, and program development and practice purposes. In this definition, self-neglect, victimization by strangers, and intimate partner abuse of older adults, unless vulnerability exists above and beyond old age, is not considered elder mistreatment (27).

The conceptualization of elder abuse victims as frail and vulnerable older adults in need of protection falls under this definition. Care dependent older adults in home or institutional care settings with physical, mental or cognitive impairments, including Alzheimer’s disease, may be viewed as potential victims of physical or emotional abuse, neglect, or financial

exploitation by family or professional caregivers with whom they have the expectation of a relationship of trust.

The vulnerable older adult conceptualization of elder abuse has been criticized as reflecting too closely the measures used in child abuse (18). While the Toronto definition is broad, the definition promoted by the US National Research Council on Elder Mistreatment has been criticized as overly narrow in defining victims as vulnerable, rendering it unusable for studies on late life domestic violence life, which can be experienced by able-bodied older people (26), and in precluding self-neglect. It has also been criticized as too broad in other definitional elements, such as “any harm ... and - can include but is not limited to”, which allows too much discretion and latitude (26).

The concept of vulnerable adult, which is a key dimension of the NRC definition, has been criticized for being ambiguous and meaning different things in different frames. Goergen & Beaulier (28) have engaged in a critical analysis to better understand the concept of vulnerability within the context of elder mistreatment. In the Elder Mistreatment frame, older adults may range from unimpaired and independent to impaired and dependent, with only the latter group identified as vulnerable. In the contemporary feminist frame, often older women are assumed to be vulnerable based on age alone, and grouped with other categories of marginalized women as reflected in the panel for International Women’s Day sponsored by UN Women at the United Nations, New York, on March 8, 2013.

### ***Intimate partner violence against girls and women of all ages***

Intimate partner abuse is defined as violence against women that “incorporates intimate partner violence (IPV), sexual violence by any perpetrator, and other forms of violence against women, such as physical violence committed by acquaintances or strangers (28).

This definition was developed by an expert panel convened by the United States Centers for Disease Control and Prevention in 1996 to formulate a uniform definition and recommended data elements for gathering surveillance data on intimate partner violence. It was intended to promote consistency in data collection for public health surveillance and as a technical reference for automation of the surveillance data (29).

Operationalized data elements broaden the scope of this definition somewhat. The victim is anyone who is the target of violence or abuse. The perpetrator is the person who inflicts the violence or abuse or causes the violence or abuse to be inflicted on the identified victim. In this definitional set, the perpetrator is assumed to be an intimate partner, defined as current or former spouse or common-law spouse, and current or former non-marital partner including dating partner (heterosexual or same sex), boyfriend or girlfriend. Violence can include physical, sexual, threat of physical or sexual violence, and psychological or emotional abuse. Psychological abuse is defined apart from threat of physical or sexual abuse to include humiliating the victim, controlling the victim’s behavior, withholding information from the victim, getting annoyed if the victim disagrees with perpetrator, deliberately doing something that makes the victim feel diminished, using the victims’ money, taking advantage of the victim, disregarding what the victim wants, isolating the victim from family or friends, prohibiting the victim’s access to transportation or telephone, getting the victim to engage in illegal activities, using the victims’ children to control victims’ behavior, threatening loss of custody of children, smashing objects or destroying property, denying the victim access to money or other basic necessities, and disclosing information that would tarnish the victims’ reputation. It also includes consequences such as impairment, injury, disability and use of health, mental health and substance abuse services (29).

This conceptualization of abuse is not necessarily gender or age specific although it typically is applied to analyses of abuse and violence toward women of reproductive age. It does not

define the victim as incapacitated or care dependent. Financial or material exploitation if included at all is defined as a form of psychological abuse. It assumes a power and control relationship between the victim and perpetrator. According to this definition, sexual abuse could be perpetrated by an acquaintance or stranger; physical abuse could be perpetrated by a one-time date.

### ***Violence***

The World Health Organization (WHO) has used another definition of violence for a multi-country study of intimate partner violence against women. In this definition, violence is defined as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that results in or has a high likelihood of resulting in injury, death, psychological harm, or deprivation (30). It links intentionality with the commitment of the violent act, and] links the acts to a power relationship. This includes threats and intimidation as well as physical violence. It also includes neglect and all types of physical, sexual and psychological abuse, as well as self-abusive acts such as suicide (31).

This definition of violence against women was used in the WHO Multi-country study on women’s Health and Domestic Violence against Women focused on intimate partner abuse of women that includes physical and sexual violence, emotional abuse, controlling behaviors and physical violence in pregnancy. It also includes a life course perspective on violence by non-partners since 15 years of age, and childhood sexual abuse before 15 years of age. Victim subjects were defined as ever partnered (currently or in the past) and even though the definition of victim did not specify age, in this study subjects were between the ages of 15-49 (22). Lifetime abuse prevalence is sometimes calculated across the lifespan for girls and women of all ages: this provides a relatively standardized prevalence measure that can be used to compare abuse rates across cohorts of women into old age (32).

### **Human rights and abuse of older people**

Human rights is a recent conceptual framework that was the subject of discussion in fora like the Expert Group Meeting on Neglect, Abuse and Violence of Older Women and the Elder Abuse Symposium sponsored by the Elder Abuse Interest Group at the 2013 Gerontological Society of America meeting. The human rights framework is believed by some elder abuse experts to hold promise for understanding neglect, abuse and violence against older women in a holistic way without the potential for fragmentation of other frameworks (33).

While it is still too early to propose a human rights theory of neglect, abuse and violence against older women, some of the elements of such a theory can be tested using existing data. This includes applying a life course perspective using longitudinal data, and focusing on the experiences of older women specifically, not older people in general or women in general. It also includes awareness of intersectionality, specifically related to gender and age, but also including race/ethnicity, class, access to health and mental health, and relationships.

Including the concept of intersectionality begins to draw on a human rights framework. This states that human rights are interdependent and the level of enjoyment of any one right is dependent on the level of realization of the other rights. The Convention for the Elimination of all Forms of Discrimination Against Women (CEDAW) and the CEDAW General Recommendation No. 27 (human rights of older women) lay out the rights of older women to live lives of dignity free of discrimination and abuse (34).

The human rights framework defines older adults as rights bearers, because they have a right to live lives of dignity, free of abuse, and family members and caregivers as duty bearers, to explain their obligation to ensure that older adults to whom they are related or to whom they

have a commitment to provide care. The State (government) is a duty enforcer, with the obligation to ensure that the rights of older people are upheld, and sometimes are duty bearers, when the State is directly responsible for older people's care. The most recent research on older adults and abuse using this framework has been undertaken by HelpAge International in collaboration with the London School of Economics.

Each of the frameworks used to study and understand neglect, abuse and violence against older women leads to different and conflicting findings, including prevalence and risk factors associated with the neglect, abuse and violence. In the next issue of the journal, findings from prevalence and qualitative studies as well as risk factors will be presented and discussed.

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## REVIEW ARTICLE

### Public health in Kosovo after five difficult years of independence

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## **Abstract**

Kosovo is undergoing a rapid process of transformation to an independent state, which was formally proclaimed in 2008, after almost a decade under United Nations administration. Regarding the health status, five years after independence, compared with other European countries, post-war transitional Kosovo is still characterized by higher mortality rates including traditional public health problems pertinent to infant mortality and maternal deaths. In parallel, however, Kosovo is undergoing a rapid process of epidemiological transition characterized by an aging trend which is inevitably coupled with high cardiovascular and cancer mortality and morbidity along with an excess mortality in external causes of death and injuries among the adult population. Adoption of the new Health Law in December 2012 by the Kosovo Assembly aims the transition from centralized health care system established under emergency conditions of the post-war period towards a contemporary modern health care system with a clear purchaser-provider split based on a high transparency and accountability of the health care providers and their contractors. The health care reform, leading eventually to significant changes within the health sector in Kosovo, consists of two main pillars: (i) structural and functional reorganization of the health care system through establishment of Kosovo Health Service (an autonomous and non-for-profit public enterprise at central level of the health care sector), and; (ii) establishment for the first time of the public health insurance system with a Health Insurance Fund as its main body. Nevertheless, five years after declaration of independence, Kosovo, the newest state in Europe consisting of the youngest population, is currently facing a particularly difficult socioeconomic and political transition and is additionally struggling and mainstreaming all energies and efforts in order to get full international recognition.

**Keywords:** independence, Kosovo, public health, transitional countries, Western Balkans.

## **Introduction**

After the war and the liberation from the Serbian regime in 1999 and almost a decade under United Nations administration, Kosovo is undergoing a rapid process of transformation to an independent state, which was formally proclaimed in 2008. Kosovo, currently recognized by 105 countries (but not yet a member of the World Health Organization), is the newest country in Europe.

Notwithstanding the fact that Kosovo is not an European Union (EU) member state, this new country is nevertheless at a very early stage on its way to EU integration and has to cope already with the EU standards and policy reforms in both social and health care sectors.

## **Demographic and socioeconomic indicators**

Kosovo consists of the youngest European population, with an average age of about 27 years (50% of the population is under 25 years) (Table 1). Notwithstanding its young population, Kosovo is inevitably affected by the global aging trend characterized by a substantial reduction of population increase from 27% in 1981 to 9% in 2007 (1). This is reflected in a steady increase in the proportion of older people over the years. Thus, official data indicate that from 2003 to 2009 the proportion of people aged **≤15 years** decreased by five percent (from 33% to 28%), along with an increase (albeit less evident) in the proportion of individuals aged **≥65 years** from 4.5 % (in 1981) to 6.7% (in 2011) (Table 1). The ageing trend could be attributed to the lowering levels of fertility rates, a higher life-expectancy and emigration of working-age adults (2).

According to a recent World Bank report, Kosovo is among the poorest countries in Europe, with 34% of the population living below the national poverty line and 12% living in extreme poverty (3). Furthermore, poverty in Kosovo may be of particular concern for the older segments of the population as suggested from a recent report of the International Labour Organization (1). As a matter of fact, a fairly recent population-based study involving a large sample of older people (individuals aged **≥65 years**), **reported** a high level of self-perceived poverty, especially among older women (52% vs. 41% in men) (4). Another remarkable finding from this population-based study of older men and women in Kosovo was the low educational attainment, especially among women (4). Thus, about 48% of the women had no formal education at all compared to 17% of men (4). In addition, in multivariable-adjusted analyses controlling simultaneously for all the demographic and socioeconomic characteristics, self-perceived poverty rates were higher among older women, the low-educated individuals, urban residents, and older people living alone (4).

## **Health profile**

Life expectancy in Kosovo was 67 years for males and 71 years for females in 2008 (2), whereas in 2011 the overall life expectancy was 70.0 years (Table 1). Currently, life expectancy in post-war Kosovo is considerably lower than in the EU member states for both males and females (Figure 1) (5).

Notwithstanding the higher infant mortality rate (17.1 per 100 live births in 2011 – Table 1), the higher child mortality rate, as well as the higher maternal mortality rate (7.2 per 100.000 in 2011 – Table 1), the excess mortality in Kosovo is also due to the higher death rates from injuries and other external causes of death and, to a lesser

degree, from cardiovascular diseases and cancer (Table 1). On the other hand, stroke mortality constitutes an exception: notwithstanding the absence of official reports, death rate from stroke in Kosovo is considerably higher than in the EU member states – a situation which is similar to many countries in the Western Balkans.

**Table 1. Selected socioeconomic and health indicators in Kosovo**

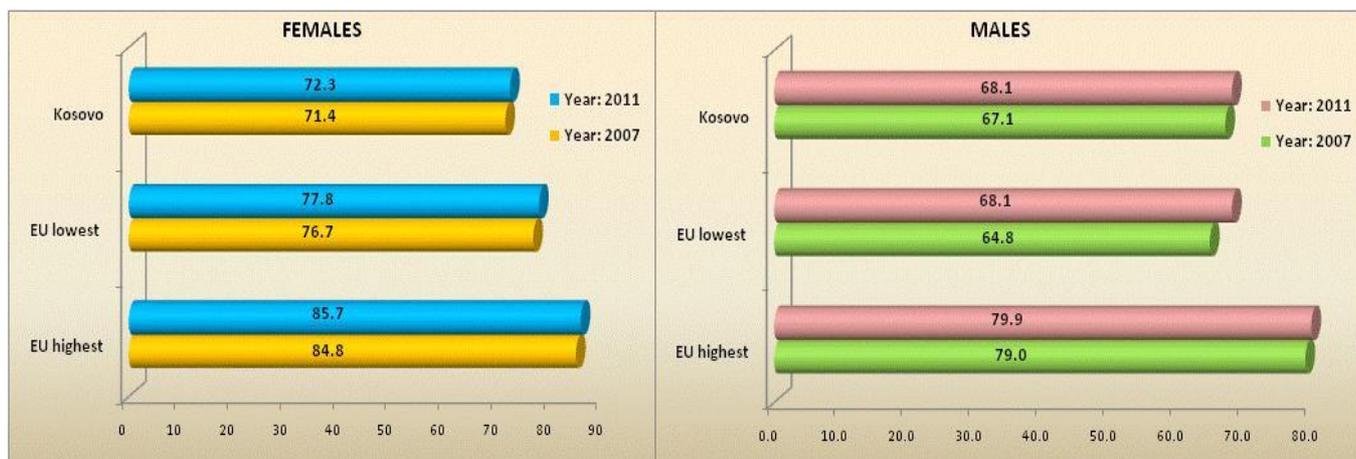
<b>Indicator</b>	<b>Year</b>	<b>Estimate</b>	<b>Source</b>
Life expectancy at birth	2011	70.0 years	Kosovo Human Development Report 2012.
Average age of the population	2012	27.1 years	CIA, World Fact-book.
<b>Population aged ≥65 years</b>	2011	6.7%	Kosovo Population and Housing Census 2011.
Percentage of urban population	2011	38.0%	Kosovo Population and Housing Census 2011.
GDP per capita	2012	2650 Euro	Agency of Statistics, Kosovo, 2012.
Human Development Index	2011	0.713	Kosovo Human Development Report 2012.
Percentage of poor	2009	34.0%	World Bank, 2011.
Percentage of extremely poor	2009	12.0%	World Bank, 2011.
<b>Illiteracy rate (population aged ≥10 years)</b>	2011	3.85%	Kosovo Population and Housing Census 2011.
Infant mortality rate (per 1000 live births)	2011	17.1	Ministry of Health, Kosovo, 2012.
Maternal mortality rate (per 100.000)	2011	7.2	Ministry of Health, Kosovo, 2012.
CVD mortality rate (per 100.000 population)	2011	157.0	Agency of Statistics, Kosovo, 2012.
Cancer mortality rate (per 100.000 population)	2011	34.2	Agency of Statistics, Kosovo, 2012.
Infectious diseases mortality rate (per 100.000 population)	2011	1.36	Agency of Statistics, Kosovo, 2012.
External causes of death (per 100.000 population)	2011	7.7	Agency of Statistics, Kosovo, 2012.
Proportional mortality from CVD	2011	59.3%	Agency of Statistics, Kosovo, 2012.
Proportional mortality from cancer	2011	15.0%	Agency of Statistics, Kosovo, 2012.
Proportional mortality from infectious diseases	2011	0.55%	Agency of Statistics, Kosovo, 2012.
No. physicians per 100.000 population	2011	146	Institute of Public Health, Kosovo, 2011.
No. nurses per 100.000 population	2011	412	Institute of Public Health, Kosovo, 2011.
No. health visits per person per year	2010	2.8	World Bank, 2010.
Public spending on health (in % of GDP)	2009	2.3	Ministry of Health, Kosovo, 2010.
Public spending on health (in % of total government expenditure)	2009	7.6	Ministry of Health, Kosovo, 2010.
Percentage of smokers in the population 15-64 years	2011	28.4 %	NIPH Survey, Kosovo, 2011.
Alcohol consumption	2011	25.0%	ESPAD, Kosovo, 2011.

As of a recent study involving a population-representative sample of older individuals in Kosovo (N=1890), 83% of the elderly people reported at least one chronic condition (63% cardiovascular diseases), and 45% had at least two chronic diseases (6). In multivariable-adjusted analyses, factors associated with the presence of chronic conditions and/or multimorbidity were female sex, older age, self-perceived poverty and the inability to access medical care (6). Hence, limited access to medical care was a significant and consistent predictor of chronic morbidity and chronic multimorbidity among older people in Kosovo (6). The overwhelming majority of Kosovo older

individuals who couldn't access medical care (almost 90%) indicated the economic barriers as the main reason for this.

The unfavorable health outcomes in the adult population including older people is noticeably a reflection of the difficult socioeconomic situation in Kosovo vis-à-vis the ongoing reforms in the health sector (7).

**Figure 1. Life expectancy in Kosovo vis-à-vis the European Union in 2011 and in 2007 (just before the independence)**



### Lifestyle factors

In Kosovo, age and lifestyle related non-communicable diseases are increasing, especially cancer, cardiovascular diseases and diabetes (6) – diseases which are commonly related to a high consumption of tobacco, alcohol, and saturated fat.

The prevalence of smoking in Kosovo (overall: 28.4%, Table 1) is lower than in the other countries of the Western Balkans including the neighboring Albania (8). Similarly, excessive alcohol consumption and binge drinking are considerably lower than in Albania, reflecting a higher degree of traditionalism and religious observance in Kosovo.

On the other hand, unhealthy dietary habits including low intake of fresh fruits and vegetables are considered to be more prevalent in the Kosovo population compared with the somehow Mediterranean diet of Albania.

Along with the unhealthy dietary patterns and the low levels of physical activity, unfavorable socioeconomic and psychosocial conditions are considered as the main drivers of the excess morbidity and mortality from chronic diseases in Kosovo including diabetes, cardiovascular diseases and other chronic conditions. Nevertheless, in Kosovo, which is characterized by a traditional society, changes in lifestyle/behavioral patterns may have differentially affected different segments of the population, particularly the vulnerable and the marginalized individuals who suffer enormously the consequences of the rapid transition and are unable to cope with the dramatic changes (4,9).

### Health care reforms

The analysis provided in the Health Sector Strategy (HSS) of the Ministry of Health indicates that the Republic of Kosovo has a network of health institutions staffed with committed health professionals, who provide regional comparable basic health care services including also a high immunization coverage. The HSS, but also more recent analyses, highlights that Kosovo, as one of the poorest countries in Europe, needs to tackle a number of fundamental challenges before the health sector becomes a comprehensive system of preventive, diagnostic and treatment services attuned to the needs of the population and supporting the citizens in obtaining a health status comparable to the EU populations (10).

With the youngest population in Europe, Kosovo's health care system needs to respond to a high demand for reproductive health and family planning services. Although infant mortality has fallen since 2000, the current level is high and places Kosovo at the very bottom compared to the EU member states. Furthermore, the existing high rate of maternal deaths points to the need and the requirements for establishing a system of services able to support all women (and men) with family planning, quality antenatal care and to ensure that hospitals, both at secondary and tertiary level, are prepared to assist in the case of complications (10). Therefore, the current action plan of the Ministry of Health gives special attention to improving mother and child health to a European Union comparable level, and hereby to achieve the Millennium Development Goals (10).

In Kosovo, basic diagnostics and treatment services are currently provided by the public health care system and yet, comprehensive tertiary care services such as oncology and cardio-surgery are not fully available. Therefore, the action plan of the Ministry of Health focuses on improving these services. Further, the action plan addresses the development of preventive measures with a significant impact on the incidence and the survival rates of these diseases (10).

Conversely, Kosovo is in urgent need of deep reforms as the armed conflict left the country with a very inefficient health system characterized by a lack of trained personnel, disparities in health force distribution leading to variations in access to primary care, corruption and informal payments, as well as deteriorated child and adult health indicators. In this context, the continuous reforming of the health sector has brought up a complex configuration of the stakeholders operating in the health system. Under these conditions, little attention is paid to the growing community of vulnerable and marginalized individuals in Kosovo which, combined with the inadequacy of financial resources, the economic insecurity and the unclear and unstable development of the health sector, pose a serious barrier for these population subgroups to access medical care (4,6). The inability of certain disadvantaged segments of the population to adapt to the new political and economic system inevitably leads to change in the position of individuals in the society, enhanced social mobility and increased inequalities, with some groups thriving and others falling behind, as it was previously demonstrated in the adult population of the neighboring Albania (9).

### **Health care financing**

Adoption of the new Health Law in December 2012 by the Kosovo Assembly aims the transition from a centralized health care system established under emergency conditions of the post-war period towards a contemporary modern health care system

with a clear purchaser-provider split based on a high transparency and accountability of the health care providers and their contractors. The main objective is a steady improvement of the quality of healthcare of the population in Kosovo.

This reform, leading eventually to significant changes within the health sector in Kosovo, consists of two main pillars: (i) structural and functional reorganization of the health care system through establishment of Kosovo Health Service (an autonomous and non-for-profit public enterprise at central level of the health care sector), and; (ii) establishment of the public health insurance system with the Health Insurance Fund as its main body.

In any case, the basic principles of the current health care reform in Kosovo include the following principles: universal coverage, equity, transparency, sustainability, equity, accountability, inclusiveness, solidarity, reciprocity and participation.

Structural and functional reorganization of the overall health care system represents a rather challenging and complex process that includes a simultaneous process of purchaser-provider split through internal reorganization of the system. As a first step, the Ministry of Health is planning to establish the Health Financing Agency (which, by law, represents the precursor of the Health Insurance Fund) and further establishment of a contemporary system of service delivery. This step, in turn, foresees the establishment and proper functioning of the University Clinical and Hospital Service of Kosovo as a unique and integrated healthcare institution at the secondary and tertiary level, closely coordinated with healthcare institutions in the primary healthcare level through a system of performance-based payments from the Health Financing Agency.

In any case, the main step of the reform will consist of adoption of the already elaborated draft on Health Insurance Law in the Government of Kosovo and establishment for the first time of the public health insurance system with the Health Insurance Fund as its main body. The main objective of the Health Insurance Law is to ensure optimal and sustainable healthcare financing.

## **Conclusion**

Kosovo is undergoing a rapid transition involving major political, social and economic changes which are associated with deleterious health effects in the adult population, particularly among older people. Nonetheless, current evidence about the exact magnitude of both acute and chronic morbidity and distribution of risk factors in the population of Kosovo is scarce due to limited vigorous research work aiming at exploring the health effects of transition and the variations in health outcomes of the adult population. From this point of view, similar to the other countries in the Western Balkans region, there is an obvious need to promote research funding and especially to develop and strengthen research capacities in Kosovo.

In conclusion, five years after the Declaration of Independence, Kosovo is currently facing a particularly difficult socioeconomic and political transition and is additionally struggling and mainstreaming all energies and efforts in order to get full international recognition.

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## SHORT REPORT

### **Systematic versus opportunistic risk assessment for the primary prevention of cardiovascular disease: Cochrane systematic review protocol**

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### **Abstract**

A large number of people, considered at increased risk of vascular disease, remain unidentified, untreated and not reached by lifestyle advice or intervention, despite public health and clinical efforts. This has prompted the initiation of national screening/systematic risk assessment programmes for vascular disease in healthy populations. These exist in addition to the more ad hoc opportunistic risk assessment initiatives undertaken worldwide. There is currently not enough indisputable evidence either showing clear clinical or economic benefits of systematic screening-like programmes over opportunistic risk assessment of cardiovascular disease (CVD) in primary care.

We present the rationale and methodology of a Cochrane systematic review, assessing the effectiveness, costs and adverse effects of systematic risk assessment compared to opportunistic risk assessment for the primary prevention of CVD.

**Keywords:** cardiovascular disease, Cochrane systematic review protocol, risk assessment.

## **Introduction**

### ***Description of the condition***

Many risk factors contribute to the development of cardiovascular disease (CVD), most of which are related to lifestyle, such as physical inactivity, smoking and unhealthy diet (1). In more than 90% of cases, the risk of a first heart attack is related to nine potentially modifiable risk factors (2): smoking/tobacco use; poor diet; high blood cholesterol; high blood pressure; insufficient physical activity; overweight/obesity; diabetes; psychosocial stress and excess alcohol consumption. The combined effect of different coexisting cardiovascular risk factors determines the total or global risk of developing CVD. Many people are unaware of their risk status and total risk assessment is potentially useful for finding high-risk individuals and guiding clinical decisions (3). Such a risk stratification approach is particularly suitable to settings with limited resources (1). Short emphasises that there is no advantage in assessment, without the ability to intervene and to make changes to lower that risk (4). Efficient and effective means of identifying high-risk individuals and then providing the support to enable them to modify their lifestyles requires a delivery system which gives priority to preventive services rather than focusing on treatment (5).

### ***Description of the intervention***

The main objectives of a risk assessment are to assess health status, to estimate health risk, and to inform and provide feedback to participants in order to reduce health risks (6).

### ***Systematic risk assessment***

Systematic risk assessment (SRA) for primary prevention of CVD is defined here as a screening-like programme, involving a pre-determined process for selection of people, who are systematically invited to attend a CVD health check in a primary care or similar setting. The selection, invitation and follow-up processes are determined in advance, for example specific inclusion/ exclusion criteria; a unified method of invitation, such as letter/birthday card/phone call; and there is a system for providing feedback or referral. Such a programme is repeated at pre-defined intervals, for example every five or ten years. The assessment process includes finding out and measuring risk factors as well as estimating the total (global) CVD risk, using a specific risk scoring tool.

The target population for such systematic risk assessment includes healthy individuals (not previously diagnosed with CVD but may already have been diagnosed with one or more CVD risk factors).

Similarly to other screening programmes, SRA can be realised in two ways: population (universal/mass), including the general population in a certain age group with no regard to any underlying risk factors; high-risk - targeted to a specific group of individuals, considered potentially to be at increased risk of CVD due to some pre-existing risk factors.

### ***Opportunistic risk assessment***

Opportunistic risk assessment (ORA) for primary prevention of CVD is defined here as occurring sporadically in a primary setting, including primary care, pharmacy chains, supermarket chains, food companies, occupational health departments or small businesses. The range of such activities varies from no CVD risk assessment at all (no risk factors are measured/no total risk is scored in healthy individuals); through random (opportunistic) risk assessment in patients attending primary care for another reason; to incentivised case-finding, for example through the Quality and Outcomes Framework for UK general practitioners (7).

### ***How the intervention might work***

According to the NHS Health Checks programme (8), a standard assessment, based on simple questions and measurements to identify the risk of coronary heart disease (CHD), stroke, diabetes and kidney disease, would be effective. After assessing the levels of the main risk factors and the total CVD risk, a follow-up is organised with an individually tailored assessment, setting out the person's level of vascular risk and what steps they could take to reduce it. Modelling work around the Health Checks approach has predicted that it would deliver significant benefits for the UK population: preventing at least 9500 heart attacks and strokes a year (2000 of which would be fatal); preventing at least 4000 people a year from developing diabetes; and detecting diabetes or kidney disease at least a year earlier for 25,000 people. It has predicted high levels of both clinical and cost-effectiveness against a range of assumptions when this approach is applied to all those aged 40 to 74 years (9).

Recent research suggests that targeting high-risk individuals (high risk based SRA) rather than mass population screening is a preferred route (10,11). Lawson identified that 16 people were needed to be screened, following the population approach, to identify one individual at high risk of CVD, costing GBP 370 per high-risk person. The alternative, e.g. targeted screening of deprived communities, estimated that only six people would need to be assessed for the identification of one high risk individual, reducing the costs to GBP 141 per positive identification. Jackson et al identify that a screening programme targeted at individuals with likely or known CVD risk factors would be preferable from a cost-effectiveness point of view (12).

Previous research (13) suggests that when a population screening programme is undertaken, there is a persistent level of non-attendance and that whilst cardiac risk score for non-attenders is similar to those who attended, non-attenders have significantly more risk behaviours such as smoking. Population-based (universal) risk assessment every five years was found to be cost-effective when compared with no screening; however a cost-analysis was not conducted on whether universal risk assessment would remain cost-effective when compared to targeted high-risk screening.

***Objective:*** The primary objective of this review is to assess the effectiveness, costs and adverse effects of SRA compared to ORA for the primary prevention of CVD.

## **Methods**

***Types of studies:*** Randomised controlled trials (RCTs).

***Types of participants:*** Healthy adults (18 years old or over) from the general population, including those at moderate to high risk of CVD.

***Intervention:*** SRA for primary prevention of CVD, defined as a screening-like programme, involving a predetermined selection process of people, systematically invited to attend a CVD health check in a primary care or similar setting, assessing at least two of the following

risk factors:

- Blood pressure (systolic and/or diastolic) or lipid profile (total cholesterol, LDL, LDL/HDL); and
- Any other modifiable risk factor (smoking, weight, diet, exercise, alcohol, stress).

**Control:** ORA for primary prevention of CVD, defined as a range of activities, occurring sporadically in any primary setting - from no risk assessment at all to incentivised case finding.

### Outcome measures

- *outcomes*
- All-cause mortality;
- Cardiovascular mortality;  
Non-fatal endpoints, including CHD, MI, CABG, PTCA, stroke, transitory ischaemic attack (TIA) and peripheral artery disease.
- *outcomes*
- CVD major risk factors: blood pressure, lipid levels, type 2 diabetes;  
Intermediate (programme) outcomes (if reported): attendance rates (number of individuals who came for examination); case finding rates (number of high-risk individuals, identified by the health check); acceptability and participants' satisfaction; and follow-up rates (number of cases who were followed with some intervention in primary and secondary care);
- Costs; <sup>Adverse</sup> *Secondary* effects.

### Search methods for identification of studies

#### *Electronic searches*

The following electronic databases were searched:

The Cochrane Library (including the Cochrane Central Register of Controlled Trials (CENTRAL) and NHS Centre for Reviews and Dissemination (CRD) databases: Health Technology Assessment (HTA), Database of Abstracts of Reviews of Effects

- (DARE) and NHS Economic Evaluation Database (NEED);
- MEDLINE (OVID);
- EMBASE (OVID);  
Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Conference Proceedings Citation Index - Science (CPCI-S) on Web of Science;
- AMED - Allied and Complementary Medicine Database. We will use medical subject headings (MeSH) or equivalent and text word terms. We will design searches in accordance with the Cochrane Heart Group methods and guidance. We will impose no language restrictions.

#### *Searching other resources*

Open Grey for grey literature; meta-Register of controlled trials (m-RCT) ([www.controlled-trials.com/mrct](http://www.controlled-trials.com/mrct)); clinicaltrials.gov ([www.clinicaltrials.gov](http://www.clinicaltrials.gov)) and WHO International Clinical Trials Registry platform (ICTRP) (<http://apps.who.int/trialsearch/>).

### Data collection and analysis

Data collection and analysis is realised through: selection of studies; data extraction and management; assessment of risk of bias in included studies; measures of treatment effect; assessment of heterogeneity; subgroup analysis, if sufficient studies are found.

Dyakova M, Drew C, Wright N, Clarke A, Rees K. Systematic versus opportunistic risk assessment for the primary prevention of cardiovascular disease: Cochrane systematic review protocol (Short report). *SEEJPH* 2014, posted: 13 January 2014. DOI 10.12908/SEEJPH-2014-02.

We will also examine the effects of the intervention design (setting, personnel involved, invitation and follow-up system). We will carry out sensitivity analyses excluding studies with a high risk of bias. If there are sufficient trials, we will undertake assessment of funnel plots and tests of asymmetry (14) to assess possible publication bias.

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**Conflicts of interest:** none declared.

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**PUBLIC HEALTH PERSPECTIVE**

**Albanian castles in defence of Balkan public health**

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Public health is a rare lamp that can push back the dark shadows of vulnerability, misfortune and poverty in our increasingly complex world. In the Balkans (South Eastern Europe, SEE) its wick must be turned up and its bright flame lengthened. Political support can provide oil to fuel its lamp. Health diplomacy and the principles of human security can be useful tools (1,2).

When the political will falters or is subverted health damage may result. The World Health Organization (WHO) and the Council of Europe called attention to the growth of population vulnerability and the declining health status in the Balkans. Together and within the context of the Stability Pact, they targeted social cohesion. One outcome was the Dubrovnik Pledge, a political agreement that made a commitment to regional health development by meeting the health needs of vulnerable populations. Country projects relating for example to infectious diseases (Albania), nutrition (Serbia), mental health (BiH) and emergency medical services (FYROM) were additional outcomes. Another outcome was the Network for Public Health for Southeast Europe (PH-SEE) (3). This network has an impressive list of publications covering a wide range of subject materials and books for students and has addressed the development of schools of public health and the need for a health curriculum for peace (4). Most recently it launched this journal, the *South Eastern European Journal of Public Health (SEEJPH)*.

The value system of public health is succinctly and differently expressed in the Skopje Declaration, for peace, public health and human rights (5) another outcome of the PH-SEE network. It was later adopted by the World Federation of Public Health Associations. In words and spirit of the Skopje Declaration our actions must “*build a better Balkan world, closer to the human heart’s desire*”.

Public health emphasizes a cybernetic or systems principle: its improvement must be addressed using strategies and action plans that are multidimensional, interdisciplinary and strongly backed by adequate human resources, by considerable ingenuity and with policy instruments commensurate to the same level of complexity of the problem space. Training for competence improvement of public health professionals and the strengthening of schools of public health is a regional priority embedded in the same principle.

Throughout the region the role of knowledge for development is being vigorously debated (6). The emergence of a Balkan research culture will depend upon abundant light and enlightenment. Progress in public health will depend on the existence of more autonomous institutions for research and education, mechanisms for accreditation and evaluation, which can include scientific journals, such as this one as well as competence to innovate and implement and direct education towards human development. A place in the new world will depend on science, truth and reconciliation as well as a rightful place for the Balkans in Europe. Development must be inseparable from socio-economic reform, target better wages, housing, living and working conditions and promote health security, which equates to “*freedom from want and freedom from fear*” (7).

By use of metaphor, we can say that the regional intellectual capacity of public health is expressed and in the launch of the SEEJPH, much akin to a line of new Albanian castles (from Lezha to Shkodra), which can stem the tide of greed and corruption and pave a way for regional health development by building on what went before. The SEEJPH is a new vehicle for discussion and debate. It can help institutional renewal of public health, give a boost to investment in training for competence, promote

policy implementation and the design of multidimensional action plans to ensure human safety and health protection. It must be prepared to break down academic barriers and build the public health community of the Balkans. It should be positively viewed and strongly supported as a channel for change promotion.

Asclepios and his disciple Hippocrates, father of Western medicine, acted as change agents when they proclaimed: “*we have an opinion, let’s discuss it, if the evidence warrants, let’s change it*”. Today we have evidence-based medicine, health technology assessment and frequently modified or changed clinical guidelines. Half of what is true today will be questioned in the next few years. Can we predict which half? Do we have such good discriminators? A competent SEEJPH can help.

Public Health training has become less fragmented and now presents a more uniform profile. This process was aided by the establishment in the Balkans of the Association of Schools of Public Health in the European Region (ASPHER, Zagreb, 1968) as a contact point, then as a hub for informational exchanges between related schools and institutions. ASPHER is a network of expertise whose functional links integrate training, science and public health policy and promote cooperation in Europe and between regions and continents.

Over the past three decades the Balkan region has courted disaster (8), suffered from economic sanctions, political upheavals, radioactive fallout (Chernobyl), armed conflict, wars (Bosnia and Kosovo), socioeconomic disaster and ecological calamity as well as earthquakes, floods and most recently a creeping health disaster in Greece of uncertain dynamics, a result of austerity measures imposed by the government, in response to the global financial crisis (9).

In 2005, I suggested that “*within an enlarging and safer Europe, the language of health is key to a better future.... without adequate socio-economic management, population vulnerability can trigger a creeping social disaster*” (10). Where cultures, religions, and national languages come together as in the Balkans, public health can be the common denominator for development. I have also argued that the region’s best future is its organization without borders and within a single European space (this was implicit in the apt phrase of the late Tony Judt: “*border breaking, community making*”).

The outcome of any complex activity is hard if not impossible to predict. All we can hope for is that ingenuity and leadership will prevail, that Balkan governments will provide public health governance within a competent infrastructure capable of monitoring success and failure and with effective corrective mechanisms for the righting of wrongs. In the Balkans let’s now hope for frequent, significant ups with fewer, smaller downs.

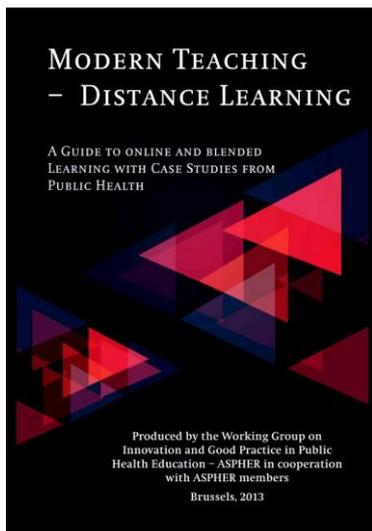
Development of schools of public health, journals such as this and the recent return of the Presidency of ASPHER, albeit temporarily to the region where it was born (SEE) are some significant ups (Professor Vesna Begovic, Serbia assumed the ASPHER Presidency in 2013). Let’s hope that a new moment for regional public health has come. If the Balkans makes it in public health, it will make it in Europe! Failing to manage the health of the Balkan region can have serious consequences for Europe (11,12). Europe without its cradle will not sleep well.

**Endnote:** The title is a tribute to extensive activities between Greece and Albania, conducted by the Athens School of Public Health sponsored by the Greek Ministry of Health. It gave the writer opportunities to mentor students, visit castles and archaeological sites, interact with many directors of the Institute of Public Health, Tirana, several NGO’s and hospitals, university staff, members of

parliament as well as health ministers, two who the writer interacted with in Prizren and Belgrade and one who was honored by the School. Projects were conducted throughout Albania one funded through PHARE. The Athens School is one of two Schools inaugurated by Eleftherios Venizelos (1919, 1929). He initiated a short-lived revolution in public health, with the help of the international community. The School conducted the first Balkan public health forum when the creation of schools in Albania and Serbia were also discussed (1992).

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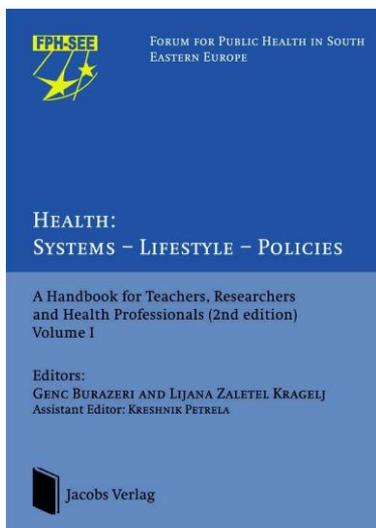


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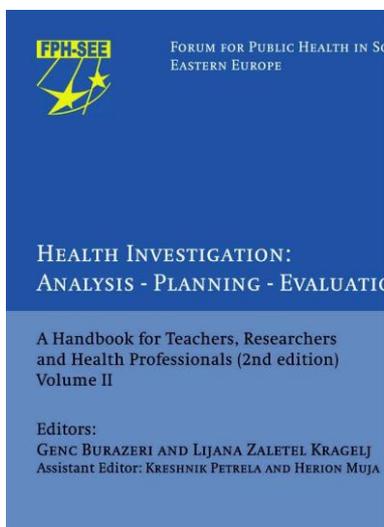


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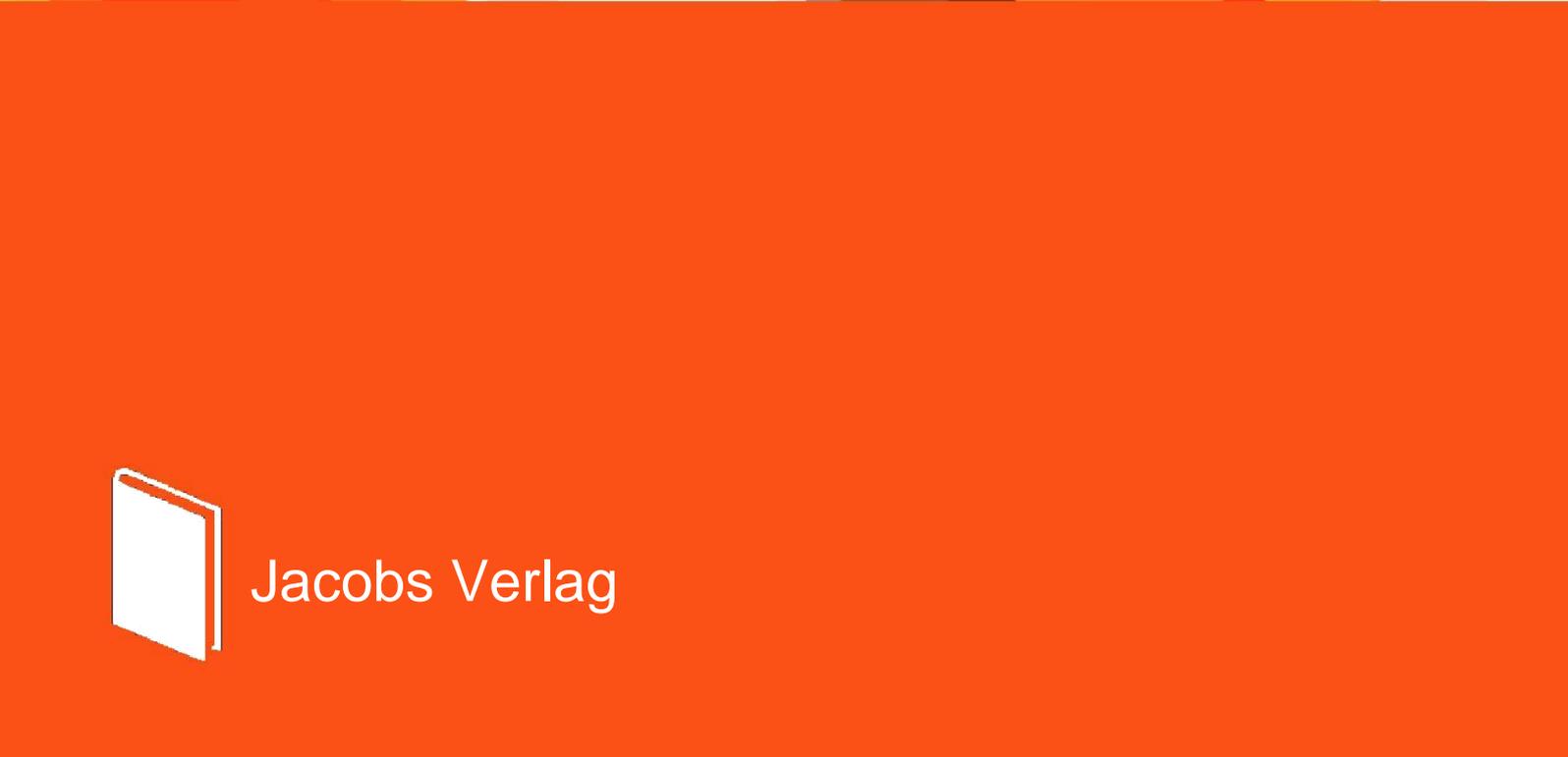
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