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Organization and activities of school health services among EU countries

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Background: School health services (SHS) can be defined as health services provided to enrol pupils by health professionals and/or allied professions. The aim of this study was to explore the current state of the governance, organization and workforce of SHS and their provision of preventive activities in European countries. **Methods:** Observational study. Data were collected as part of the Horizon 2020-funded project 'Models of Child Health Appraised'. Only 1 expert from each of the 30 included European countries answered a closed-items questionnaire during the years 2017 and 2018. **Results:** All countries (except Spain and the Czech Republic, which do not have formal SHS) provided school-based individual screening and health-enhancing measures. The majority performed height, weight, vision and hearing checks; some integrated other assessments of limited evidence-based effectiveness. Most countries also delivered health education and promotion activities in areas, such as sexual health, substance use and healthy nutrition. Almost all countries seemed to suffer from a shortage of school health professionals; moreover, many of these professionals had no specific training in the area of school health and prevention. **Conclusions:** Many EU countries need better administrative and legal support. They should promote evidence-based screening procedures and should hire and train more school health professionals. Overall, they need to adapt to the evolving health priorities of pupils, adopt a more holistic paradigm and extend their activities beyond traditional screening or vaccination procedures.

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Introduction

School health services (SHS) can be defined as health services provided to enrolled pupils by health professionals and/or allied professions. SHS are concerned with healthy pupils as well as pupils with acute or chronic health conditions.^{1–3} SHS contribute to child health and potentially reach underserved, low-income and high-risk

populations. SHS can provide the majority of adolescents with health information or care and promote wellbeing and safe lifestyles with effective interventions.

The health-care needs and profiles of health care delivered to children and adolescents have evolved over the last decades. Several of the main health problems affecting adolescents all over the world have changed, with a lessening of the prevalence of most

infectious diseases, an increase in mental health problems and intentional or unintentional violence, persistence of sexually transmitted infections (STI), unplanned pregnancies and abortions and escalating problems linked with substance misuse.^{4,5} SHS need to adapt to the evolving health priorities of pupils, adopt a more holistic paradigm⁶⁻⁸ and extend their activities beyond traditional screening or vaccination procedures.⁹ Good reviews are available showing that there are effective interventions in the fields of mental health,^{10,11} tobacco use¹² and alcoholism.¹³ Sex education and various interventions focussing on contraception, prevention of unplanned pregnancy or dating violence have also shown encouraging results.¹⁴⁻¹⁷ A promising avenue is the development of policies aimed at improving the climate of the school, with an emphasis on connectedness, respect and positive views of the pupils' achievement and future, all grouped together in the concept of health-promoting schools.^{7,11,18} The extent to which SHS in the EU countries have responded to these trends is still open to debate. The aim of this study was therefore to gain an overview of the current state of the governance, organization and workforce of contemporary SHS, as well as the provision of preventive activities in the EU countries, taking into account the importance of the changing health care needs of the pupils in most countries of the world.^{19,20}

Methods

This observational survey was part of a large, three and a half year funded EU research programme [Models of Child Health Appraised (MOCHA)], during the years 2015 and 2018, initiated by lead experts from Imperial College in London.²¹ Several groups of researchers have explored various aspects of primary care delivered to children and adolescents in all 28 EU countries as well as Iceland

and Norway.²² As part of the MOCHA design, a country expert (CE) was identified in all included countries, and asked to obtain data on the situation in their country. CEs were recruited by collaborators of the MOCHA network based on their expertise in child health services and paediatric public health. In total, they were asked to fill in 14 questionnaires over 3 years. The MOCHA budget was used to compensate these collaborators for this task. They completed the questionnaires on the basis of their own expertise or, if this was not possible, they collected data from other sources or country colleagues on individual questionnaire items. The questionnaire on SHS (see [Supplementary material](#)) covers many different aspects, and this article focuses specifically on their organization, workforce and content. Replies from 30 EU/EEA countries were obtained and analyzed (response rate: 100%). Two countries (the Czech Republic and Spain) indicated that they had no formal SHS. They were not included in this article; the CEs of these two countries specified that primary care and preventive activities were indeed provided to children and adolescents but within the primary care system of their country.

The questionnaire was based on an earlier WHO survey¹ plus a series of additional questions, using as a framework one developed by Kringos et al.²³ (Primary Health Care Activity Monitor for Europe). The survey was carried out between July 2016 and February 2017. The WHO 'health-promoting schools' standards^{24,25} were used in designing and reviewing some of the items covered.

Answers were gathered on several large Excel spreadsheets that were sent back to the CEs to ensure that the transcription of the answers was correct. The focus was on differences observed across the participating countries. No statistics were calculated. As the MOCHA surveys did not examine personal and health data from the CEs, they were not reviewed by an Institutional Review Board.

Table 1 Organization and funding of SHS in the EU countries (Spain and Czech Republic have no SHS)

	Authorities responsible for SHS organization				Authorities responsible for funding SHS				
	Ministry of health	Ministry of education	Local health authorities	Local Educ. authorities	Ministry of health	Ministry of education	Local health authorities	Local Educ. authorities	Other
Austria	○		○		○		○		
Belgium—F ^a	○	○			○	○			○
Belgium—W ^a		○				○			○
Bulgaria	○				○				
Croatia	○				○				○
Cyprus	○				○				
Denmark			○				○		
Estonia	○				○				○
Finland	○		○		○		○		
France		○	○	○		○	○	○	
Germany	○		○		○		○		
Greece	○	○			○	○			
Hungary			○				○		○
Iceland			○				○		○
Ireland	○		○		○		○		○
Italy	○	○	○	○	○	○	○	○	
Latvia	○	○	○	○	○	○	○	○	
Lithuania	○	○			○	○			
Luxembourg	○	○			○	○			○
Malta	○				○				
the Netherlands	○		○	○	○		○	○	
Norway	○				○				○
Poland	○		○	○	○		○	○	
Portugal	○	○	○	○	○	○	○	○	○
Romania	○				○				○
Slovakia	○				○				
Slovenia	○		○		○		○		
Sweden	○	○	○	○	○	○	○	○	
UK	○	○	○	○	○	○	○	○	○

a: The answers for Belgium were provided separately for the two language regions, which differ in their SHS organization.

Table 2 Models of the structure of SHS: belonging to the school (model A) or working \pm from outside (models B & C) N, nurse; D, doctor; P, psychologist; SW, social worker; De, dentist (Spain and Czech Republic have no SHS)

	A SHS are 'school based'	B SHS is a distinct structure in the health system; SHS staff not or partly based in the school	C Care offered by providers based in primary health-care facilities	A & C	B & C	A & B	Composition of the staff working in the school/SHS*
Austria	○						D; P; SW; De
Belgium—F		○					N; D; P; SW
Belgium—W		○					N; D; P; SW
Bulgaria				○			N; D
Croatia		○					N; D
Cyprus		○					N; D; De
Denmark	○						N; D; P; SW; De
Estonia				○			N
Finland				○			N; D; SW
France						○	N; SW
Germany					○		D; P; SW; De
Greece			○				No one
Hungary						○	N; D; P
Iceland	○						N
Ireland		○	○				No one
Italy					○		Not known
Latvia				○			N
Lithuania				○			Public health sp.
Luxembourg					○		Not known
Malta					○		N; D
the Netherlands		○					N; D
Norway	○						N; D; P
Poland				○			N; De
Portugal					○		Not known
Romania				○			N; D; De
Slovakia			○				No one
Slovenia		○					De
Sweden	○						N; D; P; SW
UK		○					Not known

Table 3 School-based screening procedures and vaccinations (Spain and Czech Republic have no SHS)

	Height	Weight	Visual Acuity	Hearing	Blood pressure	Dental health	STI's	Vaccination
Austria	○	○	○	○	○ (no regularly)	○	○	○
Belgium—F	○	○	○	○		○		○
Belgium—W	○	○	○	○	○	○		○
Bulgaria								
Croatia	○	○	○	○	○	○	○	○
Cyprus	○	○			○	○		○
Denmark	○	○	○	○				
Estonia	○	○	○	○	○			○
Finland	○	○	○	○	○	○		○
France	○	○	○	○	○	○		○
Germany	○	○	○	○		○		
Greece			○					
Hungary	○	○	○	○	○	○		○
Iceland	○	○	○			○		○
Ireland	○	○	○	○		○		○
Italy			○					○
Latvia	○	○	○	○	○	○		○
Lithuania	○	○	○	○	○	○		○
Luxembourg	○	○	○	○	○	○		
Malta	○	○	○					○
the Netherlands	○	○	○	○				○
Norway	○	○						○
Poland	○	○	○	○	○	○		
Portugal	○	○	○	○		○		○
Romania	○	○	○	○	○	○		
Slovakia	○	○	○	○	○	○		
Slovenia	○	○	○	○	○	○		○
Sweden	○	○	○	○				○
UK	○	○	○	○			○	○

Results

We obtained responses from all 28 countries, and the answers received from the CEs were mostly precise and comprehensive, with very few exceptions (see tables 1–4).

Governance

As shown in table 1, a wide range of institutions was in charge of the organization of SHS. In 12 countries, the responsibility was in the hands of a single institution, usually the ministry of health (Belgium, Bulgaria, Croatia, Cyprus, Estonia, Malta, Norway, Romania and Slovakia) or local health authorities (Denmark, Hungary and Iceland). In the other countries, the task was shared with the ministry of education ($N=11$) or/and local health or education authorities. In four countries (Bulgaria, Cyprus, Malta and Slovakia), funding was ensured by the ministry of health alone; in other instances, the budget was provided by several sources, such as ministries of education and/or local health authorities. In nine countries, there were no important variations in the availability of SHS activities. Half the countries ($N=16$) reported on the existence of national policies or regulations, while three countries only relied on reviews run by external experts to check the quality of the SHS, and nine mentioned self-administered inspections. The remaining 16 countries did not report any kind of quality control.

Delivery of health activities and care by SHS

The location of the provision of SHS was used as a discriminatory feature to describe SHS organizational models. Table 2 displays the partition of models of organization across the surveyed countries: five countries had onsite provision of SHS, while eight reported off-site service provision in SHS structures that were distinct from the primary care system. In another three countries, provision relied on primary care professionals based outside school premises. About half ($N=16$) reported a mixed approach combining both onsite and external interventions.

Content: package of preventive activities offered by SHS (vaccines, screening)

In eight countries, vaccinations were not part of the usual activities performed by SHS (table 3), while five CEs specifically mentioned that vaccinations constituted a high priority of SHS. A number of screening procedures were offered by SHS (table 3). Specifically, there was a basic set of interventions adopted by nearly all countries, such as weight and height measures or visual and hearing assessments. Some countries screened adolescents for STI and a number also included heart and lung auscultation, urine tests, checks for scoliosis, measurement of cholesterol, examination of the thyroid gland and assessment of neurological status. In several countries, assessment of speech, coordination and psychomotor development were also proposed. In other words, the number and nature of screening procedures varied substantially across countries.

Information on the health status of pupils was only kept and regularly updated in 18 countries. Three countries offered a yearly 'check-up' with a health professional, while 13 proposed between 3 and 9 contacts over the entire school career (in most countries lasting from 6 to 19 years). Moreover, 18 countries mentioned that extra contacts could be organized if required (e.g. if pupils complained about various health problems). In addition, in half of the countries ($n=14$), SHS offered some form of pre-referral emergency or injury care. Nineteen countries had set up procedures to inform teaching staff about common chronic diseases or conditions (allergy, asthma, epilepsy and diabetes) of pupils necessitating adjustment of educational activities. The way that information on the pupil's health status was stored varied significantly from one country to another. Often, it was stored by the school doctor or by the school nurse. Interestingly, in Denmark, all pupils have their own

personal journal and the nurses and doctor are required to summarize the health dialogues in the journal. In France, the information was kept confidential and could not be consulted unless a special request came from the parents. The files are held in the form of a paper record or an electronic file. Some countries only keep such files for pupils with chronic conditions (e.g. Ireland). Sixteen countries did not provide any information.

Content: package of health education and health promotion offered by SHS

A total of 20 CEs reported on the existence of some national policy that imposed or encouraged adherence to the WHO principles of health-promoting schools.²⁵ These include: (i) provision of a safe physical and social environment; (ii) provision of skills-based health education with a formal and informal curriculum; (iii) provision of access to health services; (iv) improvement of health-promoting policies; and (v) improvement of community health. Table 4 shows that health prevention and promotion activities were widely implemented. Nearly all countries offered some type of individual counselling or discussion of health issues with pupils. In many instances, SHS could refer the pupils to other specialists, such as psychologists, speech therapists or social workers. All CEs except three rated mental health and behavioural problems (e.g. violence and victimization, bullying and addiction) as high priority issues. Without exception, all advocated an emphasis on lifestyle issues.

Workforce

The staff working in SHS were hired at different levels of decision making: professionals were identified and trained at the state level in 12 countries and in the other countries, they were appointed by regional or local authorities, including in some instances the head of school or the school council. In 20 countries, it was not a prerequisite for SHS staff to undergo specific training in school health. However, such a specialty training course—usually optional—was available in 14 countries, in some cases, only for doctors (Belgium) or nurses (Cyprus and Poland). As shown in table 2, in 11 countries, the health professionals belonging to SHS tended to work in a multi-professional team (e.g. school nurse plus doctor, psychologist, social worker or dentist). Total of 17 countries reported formal recommendations supporting partnership with the primary care sector (paediatricians, family doctors). Finally, all ECs reported some shortage of SHS professionals, with seven signalling severe shortage (Luxembourg, Malta, Norway, Romania, Slovenia, Slovakia and UK).

Challenges

The CEs were invited to stress areas in which their country's SHS should be improved. Strikingly, many indicated a need for improvement in several aspects: inequalities in access to SHS ($n=14$), insufficient involvement of families and teachers in health promotion programmes ($n=21$), shortage of SHS staff ($n=17$) or lack of proper training ($n=15$). In addition, many countries (except Denmark, Estonia, Ireland, Italy, Lithuania, the Netherlands and Slovenia) seem to suffer from insufficient funding. Furthermore, several countries ($n=13$) reported a need for laws or regulations that firmly establish the position of SHS in educational institutions.

Discussion

This study on the organization and activities of SHS in 30 European countries had mixed results. On the one hand, almost all countries—except Spain and the Czech Republic—have some structured SHS. Moreover, most countries provide individual screening, preventive measures and, at student or population level, health promotion interventions. On the other hand, the responses revealed poor use of these unique service units in Europe: all countries seem to suffer from lack of administrative and legal support as well as

Table 4 School-based health prevention and promotion activities, individual counselling (Spain and Czech Republic have no SHS)

	Group health promotion incl. sex education	Promotion of healthy school environment	Healthy nutrition promotion	Smoking initiation prevention/cessation	Drug use prevention	Alcohol abuse prevention	Individual counselling/health dialogues
Austria	○	○	○	○	○	○	○
Belgium—F	○	○	○	○	○	○	○
Belgium—W	○	○					○
Bulgaria	○		○	○	○	○	○
Croatia	○	○	○	○	○	○	○
Cyprus	○	○	○	○	○	○	○
Denmark	○	○	○	○	○	○	○
Estonia	○	○					○
Finland	○	○	○	○	○	○	○
France	○	○	○	○	○	○	○
Germany	○		○	○	○	○	○
Greece	○						
Hungary	○	○	○	○	○	○	○
Iceland	○	○	○	○	○	○	○
Ireland							
Italy	○		○	○	○	○	
Latvia	○	○	○	○	○	○	○
Lithuania	○	○	○	○	○	○	○
Luxembourg	○	○	○	○	○	○	○
Malta		○	○				○
the Netherlands	○	○	○	○	○	○	○
Norway	○	○	○	○	○	○	○
Poland		○	○	○	○	○	○
Portugal	○	○	○	○	○	○	○
Romania	○	○	○	○	○	○	○
Slovakia	○	○	○	○	○	○	
Slovenia	○	○	○	○	○	○	
Sweden	○	○	○	○	○	○	○
UK	○	○	○	○	○	○	○

inadequate numbers of SHS professionals, with severe shortages reported for seven of them. In addition, over two-thirds of country respondents stated that their national SHS should be reformed to better meet the needs of pupils, and only around half reported on SHS quality control.

In most countries, the governance of SHS is mainly in the hands of the ministries of health (with some outsourcing to local authorities), but ministries of education are only involved in 11 countries. This is in accordance with the results of a 2018 WHO survey that confirms some coordination across different government sectors in only 8 out of the 15 EU countries surveyed.²⁶ This issue of inter-sectoral collaboration is important, especially when it involves implementing preventive activities at the level of a class or a whole school and to align the content and conditions of service delivery of SHS to WHO standards.^{24,25,27,28}

As other authors found some years ago,² we found that only five countries have purely school-based SHS and many have mixed models, with staff working both within and outside the schools. The latter may be problematic as it has been suggested that onsite services provided by dedicated SHS personnel have the potential to perform better across a number of performance measures (such as quality, equity, responsiveness and access).²⁹ We found a large variety in the number and profiles of professionals working in SHS, with teams ranging from 1 to 5, involving nurses and/or physicians, and in some instances psychologists, social workers and dentists. As was the case 10 years ago,¹ in 20 countries, it is still not a prerequisite for such professionals to undergo specific training in school health. The number of activities reported in tables 3 and 4 is impressive at first glance, but if the staff involved in these interventions are not adequately trained, the quality of the services delivered may be less than optimal.²⁴

Most countries have implemented screening for growth failure or overweight and obesity as well as vision or hearing defects that may interfere with learning and development.³⁰ It is puzzling that 15 CEs reported on SHS performing blood pressure checks, since there is

little evidence that such procedures have a long-term impact on cardiovascular disease.³¹ Moreover, three countries screen for STI's: there is little or no scientific basis for screening for such infections among adolescents.^{3,32} This also applies to other screening procedures mentioned by some CEs, such as thyroid gland, anaemia, proteinuria, scoliosis or hypercholesterolaemia. This result requires implementation of preventive services that are based on scientific evidence of effectiveness and efficiency,³³ and indeed, it is encouraging that 18 CEs mentioned the need for more data on the effectiveness of SHS to advocate for pupils' health and better support of SHS. The epidemiological shift from somatic diseases to conditions that have lifestyle dimensions (e.g. non-communicable diseases and situations, such as victimization, exploratory/risk behaviour, violence, substance use, etc.)^{34,35} demands more emphasis on psychosocial interventions and less emphasis on screening procedures.³

A strength of this survey is the very high response rate from all EU countries involved. We have also received formal checks and validation reports from all CEs regarding the validity of the transcription of their answers. A limitation is that the data are not always based on official documents but, at least in some instances, on the opinion of colleagues, stakeholders or CEs themselves. Moreover, CEs were not asked in detail about the extent of coverage of activities performed by SHS in their own country.

In summary, EU SHS need to adapt to the evolving health priorities of pupils, adopt a more holistic paradigm and extend their activities beyond traditional screening or vaccination procedures. Our results have several implications. Firstly, EU ministries of health and education as well as regional authorities should integrate and promote an inter-disciplinary, inter-professional and inter-sectoral vision of SHS to protect and foster schoolchildren's health and well-being. The collaboration between health and education ministries should be strengthened in a number of countries, since such collaboration is a prerequisite for successful implementation of sound SHS services. Secondly, since many public health authorities face budget constraints and need to prioritize their actions, they should base

SHS interventions and programmes on existing scientific data, and put less emphasis on screening procedures with limited effects on health. More emphasis is required on evidence-based preventive interventions,^{6,7} coupled with policies that address the school environment and its pedagogical climate.³⁵ Thirdly, high quality of SHS preventive or health promotion activities requires well-trained staff in adequate numbers,²⁴ an objective that is yet to be attained in most countries. Finally, while 17 countries have implemented some quality control of their SHS, this is not the case in another 11, a situation that needs to be corrected.

Supplementary data

Supplementary data are available at *EURPUB* online.

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Conflicts of interest: None declared.

Key points

- Nearly all EU countries have school health services (SHS), but they vary significantly in terms of governance, organization, content and comprehensiveness.
- While most SHS provide counselling, health education and promotion activities, in several countries, screening procedures are not based on evidence of efficacy.
- Most countries report a shortage of health-care professionals, and in many instances, these have not been trained in the area of school health.
- In many EU countries, the budget and resources of SHS should be driven less by screening procedures and more by psychosocial preventive interventions.

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Photoprotection habits, attitudes and knowledge among school communities in the Costa del sol (Spain)

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Background: Scholar photoprotection campaigns are among the most effective strategies for preventing skin cancer. Analysis of the target population constitutes a valuable starting point for the implementation of primary prevention strategies. Our aim is to study photoprotection habits, attitudes and knowledge among a Spanish school community. **Methods:** Descriptive cross-sectional study targeting schoolchildren, parents and teachers at 20 schools in the area of the Costa del Sol Health Agency in southern Spain. Two population-specific, validated questionnaires were used: the CHRESI (for children aged 0–10 years) and CHACES Questionnaire (for adults and adolescents aged > 11 years). We collected demographic data, skin colour, skin phototype, sunburn episodes, sun exposure and photoprotection practices, attitudes and knowledge. **Results:** 1728 questionnaires were analyzed (22% parents, 14.5% teachers, 44.8% adolescents and 18.6% children). The average ages were 8 years (children), 16 years (adolescents), 39 years (teachers) and 42 years (parents). Globally, the predominant features were: male sex (52%), Spanish nationality (92%) and phototypes II–III (61%). Children, followed by adolescents, reported the highest exposure to the sun, both in frequency and in duration. Adolescents had the higher rate of sunburn (75%), followed by parents/teachers (54.1%) and children (44.1%). Children and their parents were the most likely to adopt photoprotection measures, while adolescents presented more risky attitudes. Knowledge regarding photoprotection was acceptable (6.9/10). **Conclusions:** This study highlights the need to improve photoprotection knowledge, habits and attitudes among our target population. Scholars, parents and teachers in our area should be addressed in campaigns to promote healthy sun exposure habits, thus reducing skin cancer-related morbidity and mortality in this region.

Introduction

Skin cancer is currently the most common malignant neoplasm among humans. Moreover, its incidence has been increased rapidly for decades (with annual growth rates of 3–8% in Europe),^{1,2} making it a priority health problem, provoking significant demand for treatment and resulting in high healthcare costs. Primary and secondary prevention campaigns for skin cancer are viewed as a powerful means of reducing the incidence, morbidity/mortality and costs associated with this disease.

Scholar photoprotection campaigns have proven to be one of most effective strategies in preventing skin cancer. Childhood and adolescence are critical stages for the development of skin cancer, as the greater sun exposure commonly experienced at these ages, when the skin is still immature, causes high rates of sunburn, which is the main risk factor for skin cancer in adult life. Well-established school

programmes for the prevention of skin cancer, such as Sunsmart (in Australia) and Sunwise (in the USA), have not only made significant progress in raising awareness of this issue and in encouraging the acquisition of healthy sun exposure habits among the school population,³ but have also proven cost-effective.⁴ Accordingly, the acquisition of healthy sun exposure habits during the first years of life should be viewed as a strategy of fundamental importance in reducing the incidence and morbidity/mortality of long-term skin cancer.

The Costa del Sol, where this study was conducted, is located on the Mediterranean coast of the region of Andalusia, in southern Spain. This area has certain epidemiological peculiarities, such as the 300 days of sunshine recorded every year, which strongly impact on patterns of sun exposure among the population. In consequence, the prevalence of skin cancer is much higher in this area than in other provinces of Spain.⁵ However, despite this major concern, it was only a few years ago that photoprotection education first began