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Judul Artikel Ilmiah : **Pesticide Poisoning and the Use of Personal Protective Equipment (PPE) in Indonesian Farmers**

Nama semua penulis : **Tri Joko, Nikie A. Y Dewanti, Hanan L. Dangiran**

Status Pengusul (coret yg tidak perlu) : ~~Penulis Utama~~ ~~Penulis Korespondensi~~ ~~Penulis Korespondensi~~ ~~Penulis Anggota~~

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- Nama Jurnal : Journal of Environmental and Public Health
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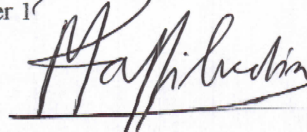
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a	Kelengkapan unsur isi artikel	Merupakan <i>research article</i> yang telah memenuhi komponen artikel, yaitu <i>abstract, introduction, materials and methods, results and discussion</i> , dan <i>conclusions</i> tentang keracunan pestisida dan penggunaan APD.
b	Ruang lingkup & kedalaman pembahasan	Artikel sesuai dengan ruang lingkup pada Journal of Environmental and Public Health. Artikel ditulis dengan baik dan didukung 39 referensi yang relevan. Sebanyak 24 referensi digunakan dalam mendukung penulisan pembahasan.
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d	Kelengkapan unsur dan kualitas jurnal	Journal of Environmental and Public Health merupakan Jurnal internasional bereputasi & memiliki impact factor, SJR 2020 = 0.869 dengan ISSN:1687-9805 dan E-ISSN:1687-9813.

Semarang, 09 Mei 2022
 Reviewer I



Dr. M. Zen Rahfiludin, SKM., M.Kes.
 NIP. 197204201997021001
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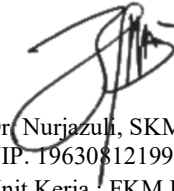
No	Komponen yang dinilai	Jurnal internasional bereputasi & memiliki impact factor, SJR 2020 = 0.869	Nilai yang didapat artikel
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b	Ruang lingkup & kedalaman pembahasan (30 %)	12	10,25
c	Kecukupan dan kemutakhiran data/informasi dan metodologi (30 %)	12	11
d	Kelengkapan unsur dan kualitas jurnal (30%)	12	11
	Nilai Total	40	36,0
	Nilai yang didapat pengusul: 36 X 0,6 = 21,6		

Catatan Penilaian artikel oleh Reviewer: Q2 SJR 0,7 → nilai maks=37,5

a	Kelengkapan unsur isi artikel	Abstract, introduction, materials and methods, Result and Discussion, Conclusion, data availability, conflict of interest, Acknowledgement, and References. Memenuhi Kaidah artikel ilmiah.
b	Ruang lingkup & kedalaman pembahasan	Artikel membahas pestisida yang merupakan unsur kimia dalam lingkungan dan gejala keracunan akibat paparan pestisida pada kelompok peteani. Artikel ini dipublish di Journal of Environment and Public Health Tahun 2020, vol 2020 No. 1, hal 1-7, terindex Scopus Q2 dengan SJR=0,7. Isi Artikel relevan dengan scope Jurnal . Pembahasan sangat mendalam dengan rujukan lebih dari 39 referensi. Hasil pembahasan dalam penelitian ini menekankan bahwa Penggunaan alat pelindung diri (PPE) sangat penting dalam rangka menekan terjadinya gangguan keracunan akibat paparan pestisida pada para petani.
c	Kecukupan dan kemutakhiran data/informasi dan metodologi	Data hasil penelitian disajikan dalam tabel distribusi frekuensi secara detail dalam tabel dan fragik, dan dinarasikan secara baik dan runtut, serta disajikan hasil analisis secara ststistik. Metode penelitian menggunakan disain cross sectional dengan sampel sebanyak 100 responden. Analisis korelasi antara penggunaan PPE dengan gangguan keracunan dilakukan dengan analisis Risiko dengan parameter OR.

d	Kelengkapan unsur dan kualitas jurnal	Artikel diterbitkan di jurnal internasional bereputasi terindeks scopus Q2, ada DOI https://doi.org/10.1155/2020/5379619 , ada corr author, academic editor, ada penerbit, ada ISSN, ada artikel history, ada volume dan nomer keberkalaan. Daftar fererensi, sebanyak lebih 39. Kualitas terbitan baik
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Semarang, 13 Mei 2022
Reviewer 2



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Pesticide Poisoning and the Use of Personal Protective Equipment (PPE) in Indonesian Farmers

Joko T. [✉](#), Dewanti N.A.Y. [✉](#), Dangiran H.L. [✉](#)[Save all to author list](#)

Department of Environmental Health, Diponegoro University, Semarang, 50271, Indonesia

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Abstract

This study aimed to investigate the poisoning symptoms occurring in pesticide-exposed farmers. This study was conducted in a red onion farming center area in Wanasari Subdistrict, Brebes, Indonesia, from May to June 2018. This study was designed as the descriptive study. The significance value of $p < 0.005$ showed that the variable was correlated with the health problems, including excessive fatigue (p value = 0.041), excessive saliva (p value = 0.006), hard breathing (p value = 0.021), frequent urination (p value = 0.047), blurred vision (p value = 0.059), dizziness (p value = 0.032), and finger pain (p value = 0.007). The significance value ($p < 0.005$) of 0.000 showed that the use of personal protective equipment was correlated with the health problems. Based on the odds ratio value of 1.137, 95% confidence interval = 0.042-0.444 meant that the personal protective equipment was a risk factor of health problems. The results showed that 89.2% of the farmers who used the personal protective equipment were categorized in the healthy group. © 2020 Tri Joko et al.

Indexed keywords

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Farmers' health risk and the use of personal protective equipment (PPE) during pesticide application

Sookhtanlou, M. , Allahyari, M.S. (2021) *Environmental Science and Pollution Research*

Analyzing the use of pesticides on health complaints of farmers in Waihatu Village, Indonesia

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Research Article

Food Safety Practice and Associated Factors among Meat Handlers in Gondar Town: A Cross-Sectional Study

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Introduction. Animal sources of foods (ASF), including meat, are a source of high-quality nutrients. However, meat composition makes it an ideal medium for the growth of a good number of microorganisms. Around 600 million foodborne illnesses and 420000 deaths occur each year due to poor food handling practice. Thus, probing into meat handling practice will be an insatiable input for the intervention. This study aims to investigate the level of meat handling practice and associated factors among meat handlers in butcheries in Gondar town, Ethiopia. **Method.** The study was a community-based cross-sectional study among butcher shops in Gondar town from April 20 to 30, 2019. Data were collected using a pretested structured questionnaire by trained data collectors among 214 meat handlers from butcher shops. Multivariable logistic regression analysis with a 95% confidence interval (CI) was used to identify the factors significantly associated with a good level of meat handling practice. **Result.** More than half of the meat handlers 66.4% (95% CI: (59.8, 72.4)) in butcher shops had a good level of meat handling practice. Level of attitude (AOR = 4.45; 95% CI, 2.09–9.43) and knowledge (AOR = 2.04; 95% CI, 1.09–3.82) were significantly associated with a good level of meat handling practice. The majority of respondents wash their hands after disposing garbage (91.6%) with less vigilance after smoking, sneezing, or coughing (64.0%). **Conclusion.** The study revealed that the level of food handling practice was unsatisfactory among meat handlers. This result is a testimony to the prevailing potential risk faced by consumers due to the disregarding of hygienic behaviors by food handlers. Considering attitude and knowledge are associated with the outcome variable, investing time on behavioral change activities that will contribute to the improvement of meat handler's attitude & practice, primarily focusing on reducing working while ill is essential. Therefore, much supervisory and coaching work will be expected from local health departments & regulatory bodies.

1. Introduction

Most fresh food, particularly those from animals, are highly vulnerable to microbial contamination and food poisoning [1]. Meat composition makes it an ideal medium for the growth of a good number of microorganisms [2] due to richness in nutrients [3]. The majority of foodborne diseases arise from the food of animal origin [4, 5]. The food handler's health status and hygiene practice are the foremost determinants of food contamination [6]. Food poisoning happens as a result of ingesting food contaminated with microorganisms or their toxins, the contamination

springing up from insufficient protection methods, unhygienic dealing with practices, cross-contamination from food contact surfaces, or men and women harboring microbes [7]. This can result in quality deterioration and, hence, quantity losses, economic losses, and public health concerns [8, 9].

According to the World Health Organization, almost 1 in 10 people fall ill, and 420 000 die every year, dining on cuisine tainted by microorganisms [10]. Other reports depicted that around 600 million foodborne illnesses and 420,000 deaths occur each year due to poor food handling practice [11], in which substantial proportion goes to meat-

Research Article

Knowledge, Attitudes, and Perceptions of Air Pollution in Accra, Ghana: A Critical Survey

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Air pollution has been a major challenge worldwide particularly in the developing world. It has dire implications for human health. Understanding the knowledge and behaviour of the populace is key to the development and implementation of necessary intervention programmes. The aim of this study was to assess the knowledge, attitudes, and perceptions of air pollution in the Accra, Ghana. The study employed a cross-sectional design to obtain quantitative data from 1404 respondents, and the results were analysed with SPSS version 23. There were more (54.1%) female respondents than males (45.9%) in the study. The majority (70.5%) of the respondents were aware of the haze (air pollution) and its adverse effects on health. There was however a significant relationship between the sociodemographics and air pollution awareness ($P = 0.01$). There was also a correlation between residents' age, educational level, length of stay, marital status, and knowledge/awareness rate of air pollution ($P < 0.05$). Although the majority of the respondents are aware of air pollution and its relationship to their health, rates of awareness were low in some demographic groups like the elderly and the less educated. Therefore, nondiscriminatory policies should be formed toward the education and guidance of people to become knowledgeable about air pollution and related health challenges. Most of the residents admitted improving air quality is the responsibility of every citizen. The government should utilize this to form collaborative measure with the citizens for a more effective control of air pollution.

1. Introduction

Breathing in good quality air daily is important for healthy living [1]. As a result, exposure to polluted air is now recognized as a vital risk factor for noncommunicable human disease conditions [2]. Air pollution has long-term health effects on people [3]. The World Health Organisation (WHO) in 2016 stated an estimated 7 million people died globally that year because of household and ambient air pollution with 90% of such deaths reported in middle- to low-income countries in Asia and Africa.

A wide range of pollutants are associated with air pollution. Particulate matter (PM) presents as a very dangerous and commonly occurring pollutant amongst them. Particulate matter has been implicated with several cardiovascular and respiratory complications [4]. Ultrafine particulates of

2.5 or less in diameter ($PM_{2.5}$) can cause respiratory disorders in certain concentrations [5]. Several activities such as electronic waste recycling, heavy car traffic, and industrial processes are linked with the emission of diverse air pollutants including dust of heavy metals, persistent organic pollutants, dioxins, carbon dioxide, and carbon monoxide into the outdoor atmosphere; all of which are linked with respiratory health problems [6]. Majority of these activities associated with emission of air pollutants are within urban communities.

Ghana is notably one of the fast-developing countries on the African continent [7]. However, this rapid economic growth appears to have influenced gradual increases in air pollution in the country. More than 28,000 deaths were attributed to air pollution in Ghana as of September 2018 [8]. The WHO further reports that the annual mean level of

Research Article

Assessment of Occupational Health and Safety among Scavengers in Gaza Strip, Palestine

Issam A. Al-Khatib ¹, Majed I. Al-Sari², and Stamatia Kontogianni³

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This study deals with the occupational health and safety of valuable and recyclable waste collectors (called scavengers) in the Gaza Strip, Palestine. The analytical descriptive approach was used in this study to achieve this goal. Waste pickers in the study area are working informally at existing dumpsites, solid waste transfer stations, landfills, and community streets' bins areas. A sample of 301 scavengers was surveyed filling a structured questionnaire designed for this purpose, during individual interviews. In addition, interviews with key Palestinian officials in the Gaza Strip have been conducted to provide accurate data and comprehensive information regarding waste pickers activities. The results showed that the occupational health and safety of the waste pickers is in constant deterioration mainly due to the informal nature of their work. The waste pickers are reportedly suffering in the current situation and the majority has no access to potable water, sanitation, and hygienically appropriate place to sleep and have meals. None of them has ever received occupational health and safety training. The study recommends that local decision makers should uptake short-term and long-term measures in waste management sector both aiming at improving this vulnerable social group's health and safety life status.



1. Introduction

In most cities of the developing countries, thousands of people are depending on the collection of recyclable materials for their livelihoods [1], and it is reported that up to 2% of the population in Asian and Latin American cities lives on scavenging income [2]. Gaza Strip is the largest area under siege in the world. Blockade and restrictions on movement imposed by the Israeli occupation cause deterioration in the local economic conditions. Most of residents are refugees living in deep poverty and unhealthy conditions. The World Bank has reported that the economy is in "free fall" and half the population is living under the poverty line [3]. Mobility restrictions have directly affected the available possibilities for men and women to access health, education,

and income, as well as sustain family and other social networks. The economic crisis in the Gaza Strip and lack of access to livelihood has forced several people to work as waste pickers, collecting recyclable materials from the generated municipal solid waste and selling them to manufacturers in order to generate income [4, 5]. The phenomenon of the waste pickers is spread across Palestine in the Gaza Strip as well as in the West Bank. Most of the waste pickers in Palestine are working informally at random dumps. The Wadi Al-Shaer Joint Service Council for Solid Waste Management (WSJSC-SWM) reported the presence of 4 waste pickers at Anabta dumpsite [6]. The Joint Service Council for Solid Waste Management (JSC-H&B) reported the presence of 81 waste pickers were working at Yatta dumpsite, which is located at the southern part of the West

Research Article

Comprehensive Risk Assessment of Health-Related Hazardous Events in the Drinking Water Supply System from Source to Tap in Gaza Strip, Palestine

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Background. The traditional approach in the management of the quality drinking water, and relying on end-product testing, has proven ineffective in protecting public health. Therefore, the transition to a systematic approach in drinking water supply systems management from the source to the consumer tap was taken as a water safety plan (WSP). **Objective.** The study aims to investigate the health-related hazardous events in order to decide on the best risk-reduction strategies in the supply of drinking water in the Gaza strip. **Methods.** A semiquantitative matrix method for risk assessment was applied. Also, chlorine residual, electrical conductivity, and nitrate concentration further tested in 109 water wells, 109 small-scale water desalination plants, 197 tanker trucks, and 384 households distributed over five governorates of the Gaza strip. **Results.** The mean of the measured chlorine residual values was less than the recommended national and international limits (0.2–1 mg/liter). The mean of electrical conductivity at catchment points and household municipal water taps was $2165.1 \mu\text{S}\cdot\text{cm}^{-1}$ and $2000 \mu\text{S}\cdot\text{cm}^{-1}$, respectively. Furthermore, zero percent of water samples met the recommended criteria, indicating that the groundwater in the Gaza strip is nonpotable. Only 12.8% and 8.8% of water samples met the permissible levels at catchment areas and municipal water at household, respectively, indicating severe health impacts on the public. Moreover, the most hazardous events were related to high levels of groundwater salinity, the low level of disinfection, the effect of electricity outages on the efficiency of the desalination process, and leakage of water from the tanker truck tank reservoirs. Therefore, urgent interventions are required to improve the quality of water and to mitigate the possible health effects. **Conclusion.** The prioritization of hazardous events that are proportional to the degree of their attributed risk could help guide in making the right risk-reduction decisions. Urgent interventions are required to improve the quality of water and to mitigate the possible health effects.

Research Article

Housing Demand in Urban Areas and Sanitary Requirements of Dwellings in Italy

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The phenomenon of urbanisation is becoming increasingly prevalent on a global level, and the health issues regarding the urban environment are of primary importance in public health. Accordingly, the present manuscript describes an analysis of the housing conditions of Italian urban areas, referring to the city of Sassari (Sardinia), Italy, focused on the dwelling structural and sanitary conditions issued by the Italian regulations. Data relating to the housing conditions of the population were acquired by the Local Hygiene and Public Health Service (SISP), in a period between 2012 and 2016. Qualitative variables were summarised with absolute and relative (percentages) frequencies, whereas quantitative variables with means and standard deviations depending on their parametric distribution. Statistical comparisons for qualitative and quantitative variables were performed with the χ^2 test or Student's *t*-test, respectively. A *p* value less than 0.05 was considered statistically significant. Finally, the dwellings and the collected variables were georeferenced on a city map. During the 2012–2016 observation period, 363 certification requests were received from 193 (53.2%) foreign-born citizens and 170 (46.8%) Italians at the SISP offices. The main reasons relate to the request for a residency permit (46.6%) and to obtain a subsidy from the local government (32.8%). Overall, 15.4% of dwellings were found to be improper, while 35.3% and 22.0% were found to be unhygienic and uninhabitable, respectively. The foreigners' homes were found to be suitable in 82.7% of cases; the housing of Italian citizens, on the contrary, was found to be suitable in 28% of the observations. The present study offers a cross section of the housing conditions of Italian urban areas, referring to the city of Sassari. To the authors' best knowledge, this observation is the first one carried out in Sardinia and one of the first observations in Italy. It has emerged that "hygienically unsuitable" homes are those that, in most cases, are located in the city centre. Moreover, the Italian population is hit by a significant housing problem, due to overcrowding, uninhabitability, and unhygienic conditions. Overall, our findings suggest that it is necessary to develop a multidisciplinary approach to guarantee public health, with safe dwellings homes and the surrounding urban context alongside the development of social relations. Nevertheless, there is still little evidence available today on the population housing conditions, especially regarding the private indoor environment, and further research is needed to bridge this knowledge gap.

1. Introduction

Urbanisation is increasing worldwide, with 70% of the global population estimated to live in urban areas in the near future [1, 2].

Health issues in the urban environment are partially addressed [3]. Observational studies on the sanitary conditions of civilian homes are still lacking. Housing can be a key determinant of health [4]: it was estimated that unsuitable housing conditions (e.g., overcrowding) can cause

Research Article

Parent's Perception regarding the Delivery of Sexual and Reproductive Health (SRH) Education in Secondary Schools in Fiji: A Qualitative Study

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Background. Adolescent Sexual and Reproductive Health (SRH) remains a challenge globally. This study aims to gauge the perceptions of parents towards the delivery of SRH education in mainstream public secondary schools in Fiji. **Methods.** The qualitative study design was used to collect the data from parents in Suva, Fiji, from July to August 2018. A semistructured questionnaire was developed to run Focus Group Discussion (FGD) among parents residing in Suva who had school-attending children from years 11 to 13. Parents were recruited from five schools with the help of students. Twenty-six parents of which 10 were males, aged between 38 and 65, participated in this study. Consent was obtained from each participant prior to the data collection stage. Data collected were transcribed verbatim and were analyzed thematically. Ethical approvals were obtained before collecting the data. **Results.** Seven themes emerged which included the provision of school-based sex education, parental involvement with school-based sex education, sex education at home, age-appropriate incremental sex education, ethnic variations regarding sex education, barriers and facilitators for the delivery of school-based sex education, and perceived ideal version of sex education. **Conclusions.** Findings from this study suggest for policy and programs to match parents, schools, and students' expectations. Effective interventions need to involve and help parents to take a more active part to change policy, program, and advocacy for relevant SRH education.

1. Introduction

Sexual and reproductive health (SRH) is an important public health issue globally [1–3]. SRH is defined as a state of complete physical, mental, and social well being in all matters relating to the reproductive system [4]. SRH recognizes the rights of people to have a satisfying and safe sex life and the freedom to decide if, when, and how often to do so [5, 6]. Adolescence is an opportune time to build healthy habits and lifestyles relating to SRH. Adolescence is a critical development period, marked by the years between the onset of puberty and the establishment of social independence [7]. Key SRH issues that affect young people are puberty, pregnancy, access to modern contraceptives, unsafe abortions, and violence including gender-based violence [8]. In

developing countries, 11 percent of females and 6 percent of males aged 15–19 have had first sex before the age of 15. Significant gender disparities exist in this area: while adolescent boys were more frequently engaged in higher-risk sex, they were also more likely to use condoms than adolescent girls; compared to boys, adolescent girls are more likely to experience the physical and emotional burden of unintended pregnancies and childbirth-related complication [9, 10]. Additionally, gender-related protection risks such as sexual and gender-based violence in many countries and communities make it especially important that adolescent girls are empowered with requisite SRH knowledge and access [11, 12]. In Asia and the Pacific region, 33 of every 1000 births are among adolescents between the ages of 15 and 19 [13, 14].

Research Article

Assessment of Heavy Metal Concentrations with Fractionation Method in Sediments and Waters of the Badovci Lake (Kosovo)

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The concentrations of thirteen metals (Al, As, Ba, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, V, and Zn) were analyzed in waters and sediments of the Badovci Lake. The total metal concentrations in the water followed the descending order: Fe > Al > Mn > Cu > Ba > Zn > As > Ni > Pb > V > Co > Cd > Cr, and the total metal content in the sediments also followed the descending order: Fe > Al > Mn > Ni > Cr > Pb > Ba > Zn > V > Cu > As > Co > Cd. According to EC 98/83, Al, Fe, and Mn at some sampling sites exceeded safety limits for drinking water, whereas other elements were at acceptable levels. The total content of Cr, Cu, Ni, Pb, and V in the sediments exceeded the target values of the New Dutch List. Using pollution indicators such as the contamination factor (CF) and geoaccumulation index (I_{geo}), most of the samples were unpolluted to moderately polluted by Cu, Cr, Pb, V, and Ni. The values of the pollution load index (PLI) were more than one (>1), indicating progressive deterioration of the sediment quality. The enrichment factor (EF) for all the studied metals suggests their enrichments in sediments of the Badovci Lake. Most of the elements were found in the residual fraction strongly bonded to the crystalline component. Pb, Mn, and Cu were bound in the organic and exchangeable components. The extent of pollution by heavy metals in sediments of the Badovci Lake implies that the environmental condition is relatively stable, and attention should be paid to metals bonded in the extractable and organic phases. It is recommended to periodically monitor water and sediment quality.

1. Introduction

The quality of sediments influences the water quality in the aquatic environment. Pollution of the aquatic environment by heavy metals has acquired increasing attention due to endurance in the sediment, toxicity, and organic accumulation that can influence human health and ecosystems [1]. According to the study in [2], of all chemical pollutants, heavy metals present special ecological, biological, and health significance. Bottom sediments in all aquatic environments are reasonable and fact-finding sources of and information on processes and mechanisms occurring in aquatic ecosystems [3]. The behavior of the metals in natural waters is determined by the water chemistry and sediment composition [2]. Geological weathering, soil erosion, airborne dust, atmospheric transportation-precipitation, and anthropogenic activities including fertilizer leaching, sewage

discharge, industrial wastewater, and urban construction are factors that enable heavy metals to enter the lakes [4]. Hydrological cycles, physical-chemical processes, and complex spatiotemporal variation enable remobilization of heavy metals from sediments into the water [5]. Responsibility for transportation of heavy metals, essential elements, and pollutants in the aquatic ecosystem might be from sediments [1]. Through the point sources (e.g., industrial, municipal and domestic wastes, and agricultural fertilizers and pesticides) and diffuse sources (e.g., surface runoff, soil erosion, and atmospheric deposition), heavy metals enter the aquatic ecosystems [6, 7]. The total heavy metal content in the sediment, related to toxicity, mobility, and bioavailability, do not provide complete information, however, can be considered as pollution indicators [8]. By analyzing mobility, bioavailability, and chemical nature of elements, additional information can be obtained for heavy

Review Article

The Role of Cardiovascular Risk Assessment in Preventive Medicine: A Perspective from Portugal Primary Health-Care Cardiovascular Risk Assessment

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The cardiovascular diseases are the leading cause of death in the world, especially because of myocardial infarction and stroke. Their beginning, however, starts many years earlier with the atherosclerotic process due to the cardiovascular risk factors, with different weights in the global risk. Our aim is to review the utilization of risk estimators in primary health care, through a comprehensive review of the literature and official national and international health data (OECD and WHO). The risk estimators aim to integrate the partial information of each factor in a global calculation able to help towards a better clinical reasoning in primary prevention. Besides the variables in the mathematical algorithm, estimators must consider also the factors not in the equation, but significant for decision making. Risk estimators are crucial in prevention, allowing to classify the risk in practical categories easy to use and to benefit the decision-making, more than trying to guess what will happen to the patient.

1. Introduction

Cardiovascular diseases are currently the leading cause of death in the world. In Portugal, in 2016, they represented more than 32,000 deaths, about one-third of the total, with the highest prevalence of cerebrovascular disease (Figure 1).

But the scenery was not always like this. At the beginning of the 20th century, infectious diseases were preponderant [1]. This situation has changed with the socioeconomic transformation in developed countries, especially after the 2nd Great War, by the improvement in the hygienic conditions, in the distribution of potable water and in the collection of the wastes and sewages, by the democratization of the access to education and employment, and by the significant improvement in the economic conditions of the population. The epidemiological transition verified during the last century led to the fall in infectious diseases, with the reduction in early mortality and the improvement of the life expectancy. Consequently, we saw a raise in the noncommunicable diseases, mostly related to

behavioral options and lifestyles, reflected in the chronic and degenerative diseases [2].

The deterministic model of Henle–Koch, described in the nineteenth century, tried to explain the causality of diseases from the infectious point of view. However, it proved to be too simplistic in new epidemiological situation, and now it does not explain the chronic illnesses, where several factors compete for the same effect, or, on the other hand, where different effects arise from the context of an apparent single cause. This new probabilistic thinking is structured by Hill in the multifactorial causality model [3] and forced the review of the postulates by Evans [4], including probabilistic thought and incorporating it into the medical decision.

In the case of cardiovascular diseases, the evolution of events is well known from the normal artery to the point of critical atherosclerosis with rupture of a plaque [5]. If we think on its natural history, we may find several cutting points where we can intervene to modelling the sequence of events and even prevent their appearance. On the edge, if we

Research Article

Public Health Implications of Solar UV Exposure during Extreme Cold and Hot Weather Episodes in 2018 in Chilton, South East England

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Consideration of the implications of solar UV exposure on public health during extreme temperature events is important due to their increasing frequency as a result of climate change. In this paper public health impacts of solar UV exposure, both positive and negative, during extreme hot and cold weather in England in 2018 were assessed by analysing environmental variations in UV and temperature. Consideration was given to people's likely behaviour, the current alert system and public health advice. During a period of severe cold weather in February-March 2018 UV daily doses were around 25–50% lower than the long-term average (1991–2017); however, this would not impact on sunburn risk or the benefit of vitamin D production. In spring 2018 unseasonably high temperatures coincided with high UV daily doses (40–75% above long-term average) on significant days: the London Marathon (22 April) and UK May Day Bank Holiday weekend, which includes a public holiday on the Monday (5–7 May). People were likely to have intermittent excess solar UV exposure on unacclimatised skin, causing sunburn and potentially increasing the risk of skin cancers. No alerts were raised for these events since they occurred outside the alerting period. During a heat-wave in summer 2018 the environmental availability of UV was high—on average of 25% above the long-term average. The public health implications are complex and highly dependent on behaviour and sociodemographic variables such as skin colour. For all three periods Pearson's correlation analysis showed a statistically significant ($p < 0.05$) positive correlation between maximum daily temperature and erythema-effective UV daily dose. Public health advice may be improved by taking account of both temperature and UV and their implications for behaviour. A health impact-based alert system would be of benefit throughout the year, particularly in spring and summer.

1. Introduction

It is known that climate change is resulting in increased frequency of hot weather episodes [1–4]. Cold weather episodes are also set to continue, although they are predicted on average to reduce in frequency and severity [1, 5]. These periods of extreme temperatures are likely to significantly impact public health [6–14]; however, little has been said regarding how these events may be affecting people's exposure to solar UV radiation.

Terrestrial solar ultraviolet (UV) radiation, comprising both UV-B (280–315 nm) and UV-A (315–400 nm), has a significant impact on health [15]. It is well established that

too much exposure is damaging to the skin and eyes and increases the risk of skin cancers [16–20]. However, exposure to solar UV-B benefits vitamin D production and bone health [21, 22]; there is emerging evidence of the role of UV-A in cardiovascular health [15, 18, 23–32], and there are suggestions that solar UV exposure reduces the risk of some cancers and other causes of death [18, 33–35]. In addition, solar radiation exposure as a whole, through exposure to visible radiation (400–700 nm), plays an important role in melatonin regulation for better quality sleep and serotonin regulation for improved mental health—both of which may enhance length and quality of life [23]. Too little as well as too much exposure to the sun and to solar UV in particular

Research Article

Regional Disparity in Asthma Prevalence and Distribution of Asthma Education Programs in Texas

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Objectives. To identify the distribution of asthma education programs that are currently active in Texas and examine whether there is a geographical disparity between asthma prevalence and locations of asthma education programs in the Public Health Regions (PHRs) of Texas. **Methods.** The data for adult asthma prevalence in PHRs was obtained from the Texas Department of State and Health Services (DSHS) 2015 Texas Behavioral Risk Factor Surveillance System (BRFSS) Public Use Data File. The Geographic Information System (GIS) program was used to show the distribution of asthma education programs and visually identify the isolated areas for asthma education programs on the maps. To examine the areas covered by the asthma education programs, we illustrated 50 miles and 70 miles of buffer zones from each program by proximity (multiple ring buffer) functions in GIS. **Results.** We identified that 27 asthma education programs are active in Texas as of July 2019. The analysis showed that PHRs 1, 2, and 7 had the highest rate of asthma prevalence but had fewer asthma education programs. Also, the distribution of asthma education programs is concentrated around major cities, leading to a regional imbalance between asthma prevalence and locations of asthma education programs. The central and western areas of Texas proved to be marginalized areas for asthma education programs, particularly PHRs 2 and 9 because they may not be covered by the buffer zones of 70 miles from any asthma education programs. **Discussion.** This study revealed the marginalized regions in Texas lacking asthma education programs. The findings could help policymakers and health care professionals enhance opportunities to develop asthma education programs using different venues in isolated areas and prioritize these regions, for funds, to establish new asthma education programs.

1. Introduction

Asthma is a chronic medical condition in which a person's airways in the lungs become narrowed and swollen, which makes it difficult to breathe causing coughing, tightness in the chest, wheezing, and shortness of breath [1]. Currently, more than 25 million (approximately 7.7% adults and 8.4% children) people in the United States have asthma, with the disease being more common in boys (9.5%) than in girls (7.3%) [2, 3]. In adulthood, it reverses and more women

(9.8%) than men (5.4%) have asthma [2, 3]. In particular, the prevalence of asthma in the US among adults in 2017 was 9.1%; 11.5% among females, 6.4% among males, 11.6% among African Americans, 9.3% among Whites, and 6.7% among Hispanics [4]. The Centers for Disease Control and Prevention (CDC) in 2017 reported that Texas had 7.3% and 7% of adults and children with current asthma, respectively [3].

Asthma has caused substantial burdens, both clinically and financially, and has become a significant health issue in