

Review of Respiratory Health Problems Among Traffic Policemen in Malaysia

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Without any protection from traffic-related air pollution, traffic policeman are exposed to air pollution on a daily basis as their duties are to manage traffic congestion. This review is carried out to explore the impact of occupational health hazards on the health of traffic police in Malaysia. Published research papers on respiratory health problems, exposure to PM_{2.5}, related occupational health issues, air pollution data and types of diseases were assessed and reviewed to put forth the need for a preventive measure. Majority of previous the studies researched have reported a decrease in pulmonary function and increase in respiratory morbidity. A vast accumulation of epidemiological evidence on the association between traffic air pollution and its respiratory health effects has been found. Occupational health studies help us to understand the effects of traffic air pollution and its adverse influence on workers. These findings can be used in the future studies by researchers, engineers and students. Most importantly, they can help us to understand the impact of air pollution and its specific adverse effects.

KEYWORD

Traffic police, Occupational health hazards, Pulmonary function, Respiratory health problems, PM_{2.5}.

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The Association Between KAP on Disasters with Depression, GAD and PTSD Among Flood Victims

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Flood disaster is detrimental to mental health of victims and the importance of knowledge, attitude and practice (KAP) in minimizing this impact seldom gets due attention. This study aims to explore the association between knowledge, attitude and practice on flood disasters and mental health of flood victims. This is a cross-sectional study among 150 flood victims in Kelantan, Malaysia. Standardized questionnaires were used to assess their levels of depression (PHQ-9), general anxiety disorders (GAD-7) and post-traumatic stress disorders (PTSD) (TSQ). Questions on knowledge, attitude and practice were adapted and customized for local victims. Face-to-face interview using these questionnaires were conducted for each respondent. The respondents were 100% Malay and Muslim. Majority of them were female (59.3%) and the average age was 48.44 years. Results showed that 29% of the respondents experienced mild to moderate depression with 2% of severe depression. Fourteen respondents (9.33%) had severe level of general anxiety disorders and 28% of the respondents were suspected to have post-traumatic stress disorders. The time of receiving information about flood is the most significant factor predicting depression, general anxiety disorders and post-traumatic stress disorders. This study highlights the significance of information dissemination within 6 months prior to flood disaster among potential victims in reducing their post disaster mental health impact.

KEYWORD

KAP (knowledge, attitude and practice), Depression, GAD (General anxiety disorders), PTSD (Post, traumatic stress disorders), flood disaster victims.

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Industrial Air Pollutants and its Association with Respiratory Health (Lung Function Test) Among Primary School Children in Kemaman, Terengganu

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There are an extensive evidence that air pollutants that comes from industrial areas do have an adverse effects on the respiratory health of the children. This study is intended to determine the exposure of industrial air pollutants (PM_{10} , $PM_{2.5}$, NO_2 , SO_2 and VOCs) and its association with respiratory health among primary school children in industrial and non-industrial area at Kemaman, Terengganu. A cross-sectional comparative study was carried out among Malay primary school children in Kemaman, Terengganu. A standardized set of questionnaire are adapted from the American Thoracic Society (ATS) and International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire. Indoor air quality assessments were conducted in each primary school and homes using several indoor air monitoring instruments. MM-SPOO4 tabletop portable spirometer were used to conduct a lung function test among the children. There were significant associations between PM_{10} with FVC% and FEV_1 % (PR= 6.77, 95% CI= 1.52- 30.13) and (PR= 6.10, 95% CI= 1.75- 21.00), $PM_{2.5}$ with FEV_1 % (PR= 3.13, 95% CI= 1.20- 8.21), NO_2 with FVC% and FEV_1 % (PR= 5.54, 95% CI= 1.24- 24.70) and (PR= 4.94, 95% CI= 1.42- 17.10) and SO_2 with FVC% and FEV_1 % (PR= 10.00, 95% CI= 2.25- 44.52) and (PR= 6.35, 95% CI= 2.10- 19.30). Results also reveal that FVC (Liter), FEV_1 % and FEV_1 /FVC % were significantly lower among the exposed group compared to the comparative group ($Z = -2.43$, $p < 0.05$), ($Z = -4.43$, $p < 0.05$) and ($Z = -4.80$, $p < 0.05$). The findings showed that exposures to industrial air pollutants might increase the risk of getting lung function abnormality and respiratory illness among study respondents.

KEYWORD

Industrial air pollutants, PM_{10} , $PM_{2.5}$, NO_2 , SO_2 , VOCs, Primary school children, FVC, FEV_1 , FEV_1 /FVC %:

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Health Risk Assessment on Aluminium in Gravity Feed System Water Used by Indigenous People in Kuala Pangsun Village, Selangor State, Malaysia

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Gravity feed system (GFS) distributes water from rivers or springs using gravity to houses without any chemical treatment. Aluminium (Al) is naturally present in water through the weathering of rocks and leaching of soil. To determine aluminium concentration in gravity feed system water and health effects of indigenous people in Kuala Pangsun village, Selangor State. There were 92 respondents involved and water samples were taken from the kitchen tap. The pH was measured *in situ*, while aluminium concentration was analyzed using inductively coupled plasma-mass spectrometry. Mean aluminium concentration was 0.079 mg/L with a range of 0.02 mg/L to 0.23 mg/L. We found 4 (7.3%) out of 46 samples which had aluminium concentration that exceeded the National Standard for Drinking Water Quality of Malaysia (0.2 mg/L). The pH levels ranged from 3.6 to 7.4 with a mean of 7.07. There was a significant association between pH and aluminium concentration in water samples studied ($p < 0.01$). Hazard quotient for all respondents was found to be less than 1. The water supply received by the respondents is safe to be consumed as the health risk from aluminium is negligible.

KEYWORD

Aluminium, pH, Gravity feed system water, Hazard quotient.

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Prenatal Exposure to Methylmercury via Fish Consumption and Child's Health Effect: Article Review

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Mercury is a ubiquitous environmental pollutant that negatively affects the prenatal and their fetus at high exposure dose. The ingestion route is the major mercury exposure pathway to maternal and their fetuses. Maternal consumption can pass through to their fetuses via placental transportation during pregnancy. Mercury in both organic and inorganic form has been known to cause toxicity to vulnerable groups, such as pregnant women and their fetus. Little is known about the effect of exposure to this group. This paper reviewed the prenatal exposure to mercury via fish consumption and the health effects to children. Materials for this review were obtained from several online databases, such as PubMed, Science Direct and Scopus. The materials were published between 1990 and 2015. We highlighted several relevant studies on prenatal exposure to methylmercury via fish consumption during gestation and their baby's health outcomes. There were significant associations between fish intake frequency and mercury level in pregnant women and the high level of mercury in mothers was significantly associated with deficit in neurocognitive functions and birth anthropometric. This review provides a compilation of prenatal exposures to methylmercury via fish consumption and the health outcomes in babies exposed to methylmercury during gestation.

KEYWORD

Organic mercury, Methylmercury, Prenatal exposure, Pregnant women, Birth outcome, Child's health.

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Particulate Measurements in the Mangrove Ecosystem of the Sundarbans for the Period 2006-2007

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Over the years, continuous rise in population alongwith a host of unplanned economic activities have adversely affected the rich biodiversity and air quality of one of the world's largest mangrove ecosystem- The Sundarbans. Considering the vulnerable fragile ecosystem of the Sundarbans, proper quantification of the atmospheric pollutants is a must for the area. The present study focuses on one of the major air pollutants, the particulates, their occurrence and effects in the area supplemented by the outcomes of researches which have too confirmed, particularly the adverse impact of the fine particulates [fine respirable particulate matter (FRPM or $PM_{2.5}$) and respirable particulate matter (RPM or PM_{10})] on areas of rich biodiversity. Measurements of the particulate fractions [fine respirable particulate matter (FRPM or $PM_{2.5}$), respirable particulate matter (RPM or PM_{10}), non respirable particulate matter (NRPM) and (total suspended particulate matter, (TSPM))] were carried out during the winter, summer and post monsoon seasons for the period 2006-2007. The reported data has been also compared with those reported for the period 2003-2006. The range of the measured average concentrations of $PM_{2.5}$, PM_{10} , non respirable particulate matter and total suspended particulate matter for the 3 seasons are (36.58-74.28) $\mu\text{g}/\text{m}^3$, (64.17-119.81) $\mu\text{g}/\text{m}^3$, (13.22-25.79) $\mu\text{g}/\text{m}^3$ and (79.93-145.59) $\mu\text{g}/\text{m}^3$, respectively.

KEYWORD

Biodiversity, Mangrove ecosystem, $PM_{2.5}$, PM_{10} , Non respirable particulate matter(NRPM), total suspended particulate matter (TSPM).

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Pollution Footprints of City Mandi Gobindgarh in Punjab

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A study was carried out to assess the status of different footprints of pollutants at Mandi Gobindgarh, Punjab. Air samples from different locations covering upwind and downwind directions were collected and analyzed for different foot prints of pollutants, that is PM_{10} , Cu, Zn, Ni and benzo(a) pyrene alongwith NO_2 and SO_2 . Water/wastewater analyzed for pH, electrical conductivity, chloride, total hardness, Ca hardness, Mg hardness, Ca-ion, ammonical nitrogen, sulphate, nitrate nitrogen and heavy metals. Ambient air quality with respect to PM_{10} was found exceeding the prescribed norm whereas other gaseous pollutants were found within the prescribed norms. The concentration of other pollutants, such as benzo(a) pyrene at all locations were found much higher the prescribed annual average standard limit, that is 01 ng/m^3 . The concentration of nickel at all locations were found exceeding the prescribed limitm, that is 20 ng/m^3 . Zinc and copper were found in lower side where as iron concentration was found remarkable high at most of locations particularly in down wind direction. Groundwater quality in the Mandi Gobindgarh with respect to conductivity indicates the rich ionic concentrations. Concentration of total suspended solids (TSS), biological oxygen demand (BOD) and chemical oxygen demand (COD) in the wastewater found exceeding the prescribed norms. Due to unplanned industrialization, poor traffic management inadequate pollution control measures deployed in industrial activities, environmental quality of Mandi Gobindgarh has been deteriorated. The study area has been declared as 'critically polluted' area by Central Pollution Control Board, (MoEF and CC), New Delhi, based on its critical environmental conditions of the city.

KEYWORD

Mandi Gobindgarh, PM_{10} , Environmental status, Groundwater, Footprints.

Adverse Effects of Indoor Air Pollution on Nervous System

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Air pollution has multiplied and is now threatening the existence of life on planet earth. Environmental predicaments range from global warming to ozone layer depletion as attributes to this man made menace. Though we principally recognize prevalence of air pollution outdoors, its indoor counterpart is stealthily killing us from within. Airborne pollutants indoors in the ambient air of households and closed spaces are being talked about much now especially because of the easily recognizable signs and symptoms they produce over a period of time in the people habiting such spaces. A rather less known although grave, toxicity inflicted by these pollutants is that of the central nervous system (CNS) which this review discusses.

KEYWORD

Carbon monoxide, Nitrogen dioxide, Sulphur dioxide, Formaldehyde, Polyaromatic compounds, Sick building syndrome.

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Performance and Emission Analysis of YSZ.CeO₂ on Piston Head Using Plasma Spray Method

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Experimental investigation was carried out in a diesel engine with its piston crown coated with yttria stabilized zirconia (YSZ) and CeO₂ (80:20) to study the influence of the thermal barrier coating (TBC) on performance and emission characteristics in comparison with baseline engine characteristics. This was chosen as the candidate material for coating the piston crown. The piston was tested in the 4 stroke Kirloskar DI diesel engine, at a constant speed of 1500 rpm. The results showed that CO, HC, brake thermal specific fuel consumption decreased, whereas the brake thermal efficiency and NO_x increased.

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Electron Microscopic Study on the Effect of Some Selected Pesticides on the Erythrocyte Membrane and Vital Organs (Liver and Kidney) of Swiss Albino Mice

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The effect of commonly used pesticides paraquat and 2,4-D on the erythrocyte membrane and vital organs (that is liver and kidney) of Swiss albino mice was observed in the following experiment. The abnormalities observed in the pesticide treated erythrocyte membranes with the help of scanning electron microscope (SEM) were the formation of echinocytes, elliptocytes, acanthocytes, codocytes, reticulocytes, tear drop cells, ghost cell, spherocanthocyte and spherocytocytes. The liver and kidney of the treated albino mice showed various abnormalities compared to the control. In case of liver of the treated mice, the degeneration of the nucleus, nucleolus, nuclear membrane and mitochondria were commonly observed. The cytoplasm was also found to be vacuolated with the breakdown of the organelles. The kidney cells of the treated mice were also observed with different degrees of degeneration. The mitochondria are damaged with destructed cristae surrounded by basal membrane, that is disorganized and the nucleus was shrunken with dense chromatin condensation. Presence of vacuoles in the cytoplasm is seen as well as thickening of the glomerular basement membrane was observed.

KEYWORD

Electron microscopy, Erythrocyte membrane, Kidney, Liver, Pesticides, Swiss albino mice.

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Survey of Sewage Treatment Plants in Gujarat and Maharashtra

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It is general observation that the sewage flow rate in the cities is much higher than the industrial effluent discharge. Steps are being made to check the sewage disposal problems. In the process, sewage treatment plants have been setup by the local agencies. A survey was undertaken in Gujarat and Maharashtra to obtain information on sewage treatment technologies, capacity and capacity utilization of sewage treatment plants, their operational status, operation and maintenance cost, utilisation of the secondary byproducts, such as treated sewage, sludge and methane gas. This paper gives analysis of data based on the survey including economics of sewage treatment.

KEYWORD

Sewage, Sewage treatment plant, Survey, Methane gas.

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