

**The Impact of Environmental Changes in the Population Health
of Saudi Arabia: A Nursing Perspective**

Dr. Bothyna Murshid

Dean, College of Nursing - Riyadh, Saudi Arabia

Both domestic and American research on the environmental changes in Saudi Arabia have reached consensus upon the significant health impacts it has on its citizens; pressing issues include: the health hazards of air and noise pollution, scarcity of quality drinking water, increasing incidence of breast cancer, and the shortage of health care professionals. Key recommendations include more stringent enforcement of existing environmental policies and regulations, water conservation, and the training of more Saudi nurses to tackle the critical shortage. The Author recognizes the importance of addressing such environmental problems, given the crucial role that the nursing work force plays for the country's future health care. What follows is a summative overview of the field of research on the impact of environmental changes in the health of Saudi Arabia.

The Risk Sciences and Public Policy Institute of the Johns Hopkins Bloomberg School of Public Health produced a major assessment of the public health impacts of the first Gulf War on the population of Saudi Arabia. The findings indicate that people living in areas exposed to high levels of air pollution have two to three times increased risk of suffering from respiratory and cardiovascular diseases when compared to people who lived in areas not experiencing the Gulf War-related air pollution (Samet & Breyse, 2005). Consequently, the prevalence of childhood asthma, chronic bronchitis and other respiratory diseases that are highly sensitive to airborne contaminants have increased sharply over the last two decades, especially among the age group 0-5 years, in the Kingdom (Ministry of Health, 1996). It was estimated that some 13% of boys and 11% of girls aged 0-18 years (more than 90,000 individuals) suffered from asthma in 1996-97 (Al-Frayh, et al. 1999).

Several other studies done in Saudi Arabia also link the increased particulate matter air pollution levels to the risk of premature death, and estimated that nearly 1,400 premature deaths could be predicted to occur from exposure to increased particulate matter levels in our air and water supplies (Syed, et al., 2004; Khan, 1992; Ministry of Health, 1996). Al-Faleh, et al. (2000) and Khan, et al. (1992), have reported that Gastroenteritis, a source of infection in Saudi school children, was caused by water contaminated with diarrhea-causing pathogens, including Cholera, Shigella or Norovirus. As many as 900 children die each year from fluid loss associated with Rotavirus in Saudi Arabia (Omar, 2000).

Correlative to hazardous environmental pollutants, a high incidence of breast cancer has been reported in significant studies, being more prevalent, in fact,

that the risks of lung cancer from tobacco smoke (Ezzat, et al., 1997). Breast cancer has the highest acute frequency rate among relatively younger age Saudi women with growing manifestation in comparison to other industrialized countries (Khan, 1992). The number of breast cancer cases registered at King Khalid University Hospital in Riyadh, were 47, 48 and 107, during the periods 1985-87, 1988-90 and 1990-93 (Annual report of the Tumor Registry, 1996), and the figure of sick women continues to escalate. Thus, a comprehensive breast cancer education program is crucial for survival of these women.

Although the need for health care services amongst the Saudi population has never been greater because of environmental and societal changes, the nursing profession is straining to provide adequate services; additional demands in the next 20-25 years will probably alter the future-nursing work force in the Kingdom negatively. Due to the health impact from changes in the environment, the Risk Sciences and Public Policy Institute of the Johns Hopkins Bloomberg School of Public Health estimates that until the year of 2030, 2 million excess hospital visits, 6 million excess visits to hospital outpatient clinics, and 23 million excess visits to primary health care centers will be needed in Saudi Arabia (Samet & Breysse, 2005). Because the number of Saudi nurses are insufficient to meet the work force needs in the Kingdom, large numbers of expatriate nurses are currently required to fill the gap; the operation of hospitals and the continued development of nursing are currently unthinkable without foreign nurses in Saudi Arabia (Tumuly, 2001). Therefore, spending more on health care centers without addressing the Saudi nursing workforce and their ability to educate the public will not result in significant improvements in the population's health. The Author recommends that university nursing programs recruit more male and female nursing students in order to tackle the critical shortage. This will require more initiative in public education about norms and values affecting nursing, so that Saudi nurses with advanced degrees could ease the recruitment tension of the nursing shortage.

Studies confirm that the Saudi government has stringent environmental standards, similar to United States Environmental Protection Agency, which were in place long before the commencement of Operations Desert Shield and Desert Storm (Samet & Breysse, 2005); Khan, 1992). But, these regulations have never been adequately enforced and thus fail to serve their purpose. The crucial importance of water quality and conservation has far greater implications than just improved health; water conservation should take priority and the quality standards of the drinking water should be updated periodically to reflect the latest scientific information. Conducting visits to industrial locations and compliance inspections, developing enforcement plan for violations of the regulations, and disseminating information about the control of air and water pollution, will help develop greater legal authority, visibility and accessibility.

The most effective way to implement the existing environmental standards, in the Author's view, is through a combination of state and local governmental

programs of enforcement and education, which reduces environmental pollution; this will enhance the utilization by other state agencies, consultants, and private associations. The Author believes that the health hazards of air and noise pollution, the scarce of quality drinking water, the declining population health, and the shortage of health care professionals, affects everyone and should be a major concern to all communities in Saudi Arabia, not just health care providers.

References

Annual report of the Tumor Registry (1996). Riyadh, Saudi Arabia, King Faisal Specialist Hospital and Research Centre.

Al-Frayh, A.R. (1999). Asthma Patherns in Saudi Arabia Children. *Clinical Allergy*, 10, 8; 98-100

Al-Faleh, F.Z. (1982). Community Health in Saudi Arabia. The prevalence of *Entamoeba hystolitica* and other parasites in school children. *Saudi Medical Journal*, 1; pg. 32-34.

Ministry of Health. (1996). Kingdom of Saudi Arabia. Annual health report.

National Cancer Registry (2000). Cancer Incidence Report 1999-2000. Riyadh, Ministry of Health.

Ezzat, A. et al. (1997). An Overview of Breast Cancer. *Annals of Saudi Medicine*, 17, 1; 10-5.

Omar, M, et al. (2000). The relationship of water sources and other determinants to prevalence of intestinal protozoal infections in a rural community of Saudi Arabia. *Journal of Community Health*, 20, 4; pg. 433-439

Khan, M.U. (1992). Influence of income and education on the use of environmental facilities in Abha community of Saudi Arabia. *Emirates Medical Journal*, 10; 125-129.

Tumuly, G. (2001). Professional development of nursing in Saudi Arabia. *Journal of Nursing Scholarship Indianapolis*, 33, 3; pg. 285-8.

Jackson, C., & Gary, R. (1991). Nursing: attitudes, perceptions and strategies for progress in Saudi Arabia. *Annals of Saudi Medicine*, 11(4), 452-458.

Philips, A. (1988) Nursing Education in Saudi Arabia. *Annals of Saudi Medicine*, 9, 2, 195-197.

White Paper for Fulbright Academy Workshop in Doha, March 23-25, 2007

Syed, M. H. (2004). Cladosporium and respiratory allergy. Diagnostic implications in Saudi Arabia. *Mycopathologia*, 157, 2: pg. 171-179

Samet, J & Breysse, P. (2005). Health impact of 1990-91 Gulf War on Saudi Arabia Population. Annual Conference of the International Society of Environmental Epidemiology in September. –*Tim Parson*