

## Poverty and injury risk among children: always together?

Dr. Petridou is an Associate Professor of Epidemiology at the Athens University Medical School and Dr. Belechri is a Senior Researcher of the Center for Research and Prevention of Injuries (CEREPR), Athens University Medical School

Socioeconomic status (SES) is one of the strongest predictor of disease and premature death (Kendrick & Marsh 2001; Capewell et al. 2001). The association applies to most diseases with few exceptions, like breast cancer, Hodgkin's lymphoma, or allergic diseases. The detrimental effects of poverty and hardship on safety have been documented very early in the context of occupational injuries, military casualties, and major accident victims (Roberts & Power 1996). During the last few decades many studies have documented the strong association between low SES and high incidence of most forms of injuries (Kendrick & Marsh 2001; Roberts & Power 1996; Laflamme & Diderichsen 2000). It has always been assumed that the effects of poverty on injury risk should not be difficult to explain. On the contrary, major research efforts have been undertaken to understand how psychosocial factors affect the risk of cardiovascular disease (Bartley et al. 2000) and some forms of cancer (Tomatis 1992). Nevertheless, no studies have been undertaken to explicitly ascertain the ways and means through which poverty increases injury risk. Recent studies have shown lack or inverse association between poverty and injury risk (Anderson et al. 1994; Evans & Kohli 1997). Issues that need further elucidation, include the mechanisms through which and the identification of crucial mediator of the sequence of events from poverty to high risk behaviour or conditions, so that prioritisation of preventive measures in terms of effectiveness and efficiency can be made. Differential patterns of availability, access and utilisation of health care services for the prevention and control of injuries by SES should be always taken into account (Overpeck et al. 1997). The latter may also explain observed differences in injury fatality rates (Van Beek et al. 1991). The opportunity of exposure to a high-risk situation or access to a hazardous product, has long been recognised

(Towner et al. 1994; Petridou 1995). Thus, investigations indicating that children of wealthier families are at higher risk of poisoning (Petridou et al. 1996) or drowning (Logan et al. 1998) highlight the role of increased availability of consumer products or easier access of children to residential swimming pools in the formation of environments with elevated injury risks.

Children of wealthier families are generally under closer supervision and in most countries affluent families have fewer children. In this sense, wealth is frequently cited as the underlying reason operating – through better supervision and reduced crowding – for the lower incidence of home and leisure injuries among children in families of higher SES status. In traditional societies, where mothers are encouraged to work at home the “supervision” hypothesis can be directly evaluated. Indeed, studies in Greece and other countries (Petridou et al. 1998; Wortel & De Geus 1993) showed that established indicators of SES such as maternal education were found to be unrelated to home and leisure injuries. Another issue that may clarify this relation is the quality of parental supervision. It may be the case that children of middle class mothers enjoy better quality supervision due to more relaxing maternal household working schedules (Petridou et al. 1995).

Environmental conditions are crucial for passive safety but social class associated education may play an independent or interactive role. The micro-society of the school offers an environment that is not directly related to home condition (Petridou et al. 1994; West 1997). Whenever in this surrounding, SES is found to be unrelated to injury risk (Overpeck et al. 1997), it implies that health education, which promotes active safety, may play a relatively limited role or that peer group influence over-rides home and neighbourhood background in a way to reduce social inequalities.

*The confounding effect of variables such the cultural milieu, which is related to both poverty and migrant status, should be carefully taken into account and an effort should be made to apportion the relative importance of each of these parameters. For instance, children of lower SES are more likely to attend schools in deprived areas, where students encounter more psychosocial problems being therefore at higher risk for either unintentional or intentional injuries (Laflamme & Menckel 2001).*

*For intentional injuries, interpretation and analysis of data is more complicated because socio-economic conditions affect the perpetrator, the victim as well social environment and secondary actors, such as the attending physician. It seems that child abuse is often masked among children of higher-*

*class families and even health professionals may be reluctant to pursue documentation (Woolf et al. 1988; Agathonos et al. 1982).*

*It should be realised that the considerable and well recognised difficulties in the conceptual and operational definition of social class, generate additional problems whenever the objective of a study is to identify a crucial component of the SES complex that may or may not be operating in a particular setting. Thus, research to operationalise the components of this complex should be encouraged and proceed in parallel with attempts to identify their quantitative importance, so that the impact of socio-economic differentials on health is better understood.*

**Eleni Petridou, Maria Belechri**

## References

- Agathonos H, Stathacopoulou N, Adam H, Nakou S (1982). Child abuse and neglect in Greece: sociomedical aspects. *Child Abuse Negl* 6: 307–11.
- Anderson R, Dearwater SR, Olsen T, Aaron DJ, Kriska AM, LaPorte RE (1994). The role of socioeconomic status and injury morbidity risk in adolescents. *Arch Pediatr Adolesc Med* 148: 245–9.
- Bartley M, Fitzpatrick R, Firth D, Marmot M (2000). Social distribution of cardiovascular disease risk factors: change among men in England 1984–1993. *J Epidemiol Community Health* 54: 806–14.
- Capewell S, MacIntyre K, Stewart S, et al. (2001). Age, sex, and social trends in out-of-hospital cardiac deaths in Scotland 1986–95: a retrospective cohort study. *Lancet* 358: 1213–7.
- Evans SA, Kohli HS (1997). Socioeconomic status and the prevention of child home injuries: a survey of parents of preschool children. *Inj Prev* 3: 29–34.
- Kendrick D, Marsh P (2001). How useful are sociodemographic characteristics in identifying children at risk of unintentional injury? *Public Health* 115: 103–7.
- Laflamme L, Diderichsen F (2000). Social differences in traffic injury risks in childhood and youth – a literature review and a research agenda. *Inj Prev* 6: 293–8.
- Laflamme L, Menckel E (2001). Pupil injury risks as a function of physical and psychosocial environmental problems experienced at school. *Inj Prev* 7: 146–9.
- Logan P, Branche MC, Sacks J, Ryan G, Peddicord J (1998). Childhood drownings and fencing of outdoor pools in the United States, 1994. *Pediatrics* 101: 3–8.
- Overpeck MD, Jones DH, Trumble AC, Scheidt PC, Bijur PE (1997). Socioeconomic and racial/ethnic factors affecting non-fatal medically attended injury rates in US children. *Inj Prev* 3: 272–6.
- Petridou E (1995). Injury prevention: an uphill battle. *Inj Prev* 1: 8.
- Petridou E, Kouri N, Polychronopoulou A, Siafas K, Stoikidou M, Trichopoulos D (1996). Risk factors for childhood poisoning: a case-control study in Greece. *Inj Prev* 2: 208–11.
- Petridou E, Kouri N, Trichopoulos D, Revinthi K, Skalkidis Y, Tong D (1994). School injuries in Athens: socioeconomic and family risk factors. *J Epidemiol Community Health* 48: 490–1.
- Petridou E, Trichopoulos D, Mera E, et al. (1998). Risk factors for childhood burn injuries: a case-control study from Greece. *Burns* 24: 123–8.
- Petridou E, Zervos I, Christopoulos G, Revinthi K, Papoutsakis G, Trichopoulos D (1995). Bio-social variables and auditory acuity as risk factors for non-fatal childhood injuries in Greece. *Inj Prev* 1: 92–6.
- Roberts I, Power C (1996). Does the decline in child injury mortality vary by social class? A comparison of specific mortality in 1981 and 1991. *BMJ* 313: 784–6.
- Tomatis L (1992). Poverty and cancer. *Cancer Epidemiol Biomarkers Prev* 1: 167–75.
- Towner EM, Jarvis SN, Walsh SS, Aynsley-Green A (1994). Measuring exposure to injury risk in schoolchildren aged 11–14. *BMJ* 308: 449–52.
- Van Beek EF, Mackenbach JP, Looman CW, Kunst AE (1991). Determinants of traffic accident mortality in Netherlands: a geographical analysis. *Int J Epidemiol* 20: 698–706.
- West P (1997). Health inequalities in the early years: is there equalisation in youth? *Soc Sci Med* 44: 833–58.
- Woolf A, Taylor L, Melnicoe L, et al. (1988). What residents know about child abuse: implications of a survey of knowledge and attitudes. *Am J Dis Child* 142: 668–72.
- Wortel E, De Geus GH (1993). Prevention of home related injuries of pre-school children: safety measures taken by mothers. *Health Educ Res* 8: 217–31.