

Dysfunctional families and bad neighborhoods may worsen asthma in children and adolescents

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A lack of family support and problems in one's neighborhood are associated with greater asthma symptoms in children and adolescents, according to researchers in Vancouver, Canada.

Social environment has long been thought to be an important factor in asthma manifestations in youth, but few studies have empirically tested social factors at the family, peer and neighborhood levels and their implications for childhood asthma.

Edith Chen, Ph.D., of the University of British Columbia, and other researchers set out to determine whether, and to what extent, social factors influence asthma symptoms and lung function. They reported their results in the first issue for October in the *American Journal of Respiratory and Critical Care Medicine*, published by the American Thoracic Society.

The researchers hypothesized that greater neighborhood problems and a lack of peer and family support would all relate to greater asthma morbidity. Furthermore, they hypothesized that social factors would work by altering either biological systems, such as inflammation, or behaviors, such as smoking.

They recruited 78 children who had physician-diagnosed asthma without other chronic illnesses, and assessed the extent to which youth perceived support from family, support from peers and problems in their neighborhood, such as crime and violence. They measured their lung function using standardized spirometry techniques, and assessed their asthma symptoms based on interviews and daily diaries that the subjects kept. They also assessed behaviors, including smoking and compliance with medications, and evaluated biological markers of inflammation including IgE, eosinophil count and IL-4 production.

The investigators found a correlation between social environment and asthma symptoms and lung function. Asthma symptoms were greater among children who reported less family support and lived in worse neighborhoods; lung function also was poorer among children who reported less family support.

To determine possible reasons for these associations, the researchers performed statistical analyses of pathways linking family support and neighborhood problems to asthma symptoms and lung function. They found that family support and asthma outcomes were linked via inflammation, but not behaviors. That is, low levels of family support were associated with greater inflammation, and, in turn, greater inflammation was associated with poorer asthma outcomes. In contrast, family support did not appear to change children's behaviors.

Neighborhood problems and asthma symptoms were linked through behavioral pathways, but not through inflammation. The more problematic neighborhoods were associated with greater rates of child smoking and exposure to smoke. In turn, smoking was associated with poorer asthma outcomes. In contrast, neighborhood characteristics did not appear to change children's inflammatory profiles.

"Poor family relations may foster psychological experiences with direct physiologic consequences, whereas problematic neighborhoods may operate by providing role models for maladaptive behaviors," wrote Dr. Chen.

Interestingly, peer group support had no significant effects on asthma symptoms or lung function. These findings suggest that among children with asthma, family and one's neighborhood play a

more important role in asthma morbidity than do peers.

Dr. Chen noted that the study group was small and that the cross-sectional design of the study precluded drawing a direct causal relationship, stressing that more research is necessary before drawing any definitive conclusions. If these findings are confirmed in future research, however, they could have important implications for asthma interventions. For example, interventions that target family interaction patterns may help improve children's asthma by altering biological profiles. The neighborhood effects suggest the potential utility of making community-wide changes that could help shape the health behaviors of children with asthma.

"To test these implications, future research is needed that investigates the effects of experimental manipulations of social factors on childhood asthma morbidity," said Dr. Chen.

Source: American Thoracic Society

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