Preschoolers from low-income families may have worse health and benefit less from health promotion

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Low socioeconomic status can negatively impact children's health in preschool, along with their ability to follow specialized health education

intervention programs, Mount Sinai researchers found in an international study focused on health promotion in schools, including those in the Harlem section of New York City. The results, published in the *Journal of the American College of Cardiology*, stress the importance of introducing a specialized health curriculum in classrooms starting in preschool.

"This study shows that socioeconomic factors, including lower household income and education level, can negatively impact children's health starting in preschool and emphasizes the importance of promoting healthy lifestyle habits through a specialized school curriculum focused on nutrition and exercise starting in preschool to prevent cardiovascular disease later in life."

"It is also important to not just educate children, but also teach their caretakers and teachers about healthy habits to further support these efforts," says Valentin Fuster, MD, Ph.D., President of Mount Sinai Heart, Physician-in-Chief of The Mount Sinai Hospital, and General Director of the Spanish National Center for Cardiovascular Research (CNIC). Dr. Fuster created and led the trial, known as the FAMILIA Project at Mount Sinai Heart.

The study is part of an ambitious multinational effort to intervene early in the lives of children, their caretakers, and teachers so they can form a lifetime of heart-healthy habits. Researchers conducted the work in 15 Head Start Schools in Harlem, a socioeconomically disadvantaged area that is commonly linked to higher rates of obesity, heart disease, and other health issues. The work was also done in schools in Madrid, Spain (middle to high economic status), and Bogotá, Colombia (middle to low economic status).

Researchers analyzed a total of 3,839 children between three and five years old—562 students in Harlem, 1,216 in Bogotá, and 2,061 in

Madrid. At the beginning, children had their weight and height measured and answered a simple guided questionnaire, which included pictures for easier comprehension, to test their knowledge, attitudes, and behaviors regarding diet, physical activity, how the human body and heart works, and emotions.

Children in half of the preschools (the control group) had their regular classroom curriculum, while children in the other preschools (the intervention group) went through a different learning program created by cardiologists, psychologists, and educators over a four-month period. In this program, students had specialized classwork, where teachers taught them about healthy diet, physical activity, how the human body works, and managing emotions.

Caregivers were also told to engage in specific activities with their children on weekends during the four months, including buying fresh fruit at the grocery store and choosing physical activity over sedentary behavior. After four months, researchers reassessed children's weight and height and gave that same questionnaire to children in both the control and intervention groups and compared them.

In this study, researchers specifically looked at household income and educational level, and how they impact students' knowledge, attitudes, and habits (KAH) toward a healthy lifestyle, and their body mass index z-scores (zBMI). They assessed how socioeconomic status impacted children's health before and after intervention.

The overall adjusted baseline KAH averaged at 46.3 points on a scale from 0 to 80. Children with higher socioeconomic status—as measured by both household income and educational level—started with higher (healthier) baseline scores. Students with high parental educational level had higher KAH scores (average of 47.2) than those with low parental educational level (average of 45.7).

Children from high-income households had better KAH scores (47.4) than children from low-income households (45.8). Children from families with high educational level and household income had a lower zBMI compared with children from families with low educational level and household income at baseline.

After the end of the intervention, researchers compared KAH and zBMI between intervention and control groups. Overall, KAH improved more in the intervention group than in controls, and went up by 4.76 points compared to the control group after four months. There was also a bigger jump in points among children with higher socioeconomic status.

KAH for the high-household-income intervention group went up by 6.33 more points than the control group. KAH for low-household-income intervention students went up 4.24 points more than the control group.

KAH for intervention students from high-education families went up by 4.96 compared to the control group, and 3.75 for those from low-education families, suggesting that children from these families did not follow the curriculum as well as those from high-education backgrounds. zBMI numbers did not significantly change after the intervention and there were no major differences in zBMI between socioeconomic groups.

Dr. Fuster and his team are now running this school program in two boroughs of New York City and plan to expand it across the five boroughs in the next few years. This project will evaluate many other factors about health, teacher's motivation, environment (pollution), and familial issues.

More information: Valentin Fuster et al, Impact of Socioeconomic Background on Cardiovascular Health Promotion in Early Childhood, *Journal of the American College of Cardiology* (2023).

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