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Using a wearable GPS device to objectively assess transportation-related physical activity of obese adults

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Trip-related utilitarian physical activity (PA), such as walking, can bring significant health benefits. Healthcare providers' counseling on PA may be enhanced by knowledge of supportive environments and other factors, e.g., objectively measured caloric expenditures. We tested the watch-type, wearable Global Positioning System (GPS) device as a new tool to facilitate environment-PA research by providing detailed spatial-temporal data. Overweight/obese patients (n=30) were recruited and provided GPS units, accelerometers, and travel logs to track/record their PA behaviors for seven days. Mean age and BMI were 48 years and 31.6, respectively; 83.3% were female and 80% were married. They made 41 trips/week (6.5 trips/weekday; 4.3 trips/weekend day). Driving accounted for 87.6% of all trips; every participant drove every day. Only 57% walked at least once during the 7-day period. Walking comprised 10% of driving trips. The participants spent 16 minutes/trip (78.0 minutes/day) and traveled 7.4 miles/trip (33.9 miles/week). Complementary data from their travel logs and accelerometers indicated shopping and personal/family-related (52.1%) and commuting (24.4%) as popular trip purposes, suggesting that locations of work sites, stores, and services are crucial to the choice of PA. Only 160 calories were burned/person-day from all trip-related physical activities. The GPS unit appears to be a manageable tool for most overweight/obese adults. The data from GPS provide valuable objective and detailed spatial-temporal information on outdoor physical activities that are otherwise difficult to capture using self-report methods. Knowing patients' PA patterns may help physicians to better counsel them on building PA into their everyday routines.

Biography

Samuel N Forjuoh, MD, DrPH, FGCP, is a Professor of Family & Community Medicine, Epidemiology & Biostatistics, and Health Promotion & Community Health Sciences at the Texas A&M University. Formally trained as a generalist physician in Ghana and England, he obtained advanced degrees in Biostatistics from Harvard University and Injury Epidemiology from the Johns Hopkins University. He is a member of the AHRQ's Healthcare Information Technology Research Study Section. Along with contributing many book chapters, he has published more than 100 peer-reviewed papers and serves as an Editor-in-Chief of the International Journal of Injury Control and Safety Promotion.

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