

The Utilization of GPS Technology in Tracking Homeless Adults: a Pilot Study

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ABSTRACT

The purposes of the present study were to examine the feasibility of using GPS technology in a difficult-to-follow homeless population and to develop GPS tracking methods that researchers can utilize in future studies. Twenty individuals were recruited from a homeless day center. Each carried a GPS unit to record their movements for approximately 24 hours. Participants completed interviews consisting of demographic questions, a pre-tracking survey, and a post-tracking survey about planned and reported travels respectively and also submitted urine specimens for substance use testing. GPS data were downloaded from the tracking device and exported into ArcMap 10 and SAS 9.3 for analysis. Concerted efforts were made to achieve successful deployment with the first eight participants, necessitating refinement of the research procedures. Thereafter, 81% success was attained in collecting adequate deployment data. Travel distances varied (.05-36 miles), mostly taken on foot and by city bus. No GPS units were lost during deployment, although one was water-damaged in a shower. Challenges encountered in the study included battery problems (power drainage, theft), signal loss, lengthy initial calibrations (up to 15 minutes), inaccurate recordings due to drift of satellite anchors to positions, and difficulties re-engaging with participants post deployment. The study demonstrated the feasibility of using GPS technology to track movements of a difficult-to-track population. This work has clarified the need to integrate GPS and self-report data to maximize the precision of geospatial data. The success of this pilot study suggests novel potentials for GPS technology to improve service access and identify geospatial barriers to care.

Homeless Persons

Geographic Information Systems—utilization

Delivery of Health Care--methods



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