



THE 3-ITEM TRANSPORTATION SECURITY INDEX (TSI-3)

TECHNOLOGY NUMBER: 2025-677



OVERVIEW

The Transportation Security Index-3 (TSI-3) is a concise, validated survey tool that efficiently measures transportation insecurity—helping organizations identify and address barriers to safe and timely mobility at the individual level.

- **Key Features:** Easy-to-administer, three-question instrument capturing both logistical and emotional barriers to transportation.
- **Market Opportunity:** Empowers agencies, cities, and research groups to accurately assess and strategically respond to transportation insecurity without the high burden or costs of longer surveys.

BACKGROUND

Transportation insecurity—being unable to regularly get from place to place safely or on time due to a lack of necessary resources—is a significant but often “invisible” challenge worldwide. It affects access to jobs, healthcare, education, and social participation, particularly for individuals with lower incomes, disabilities, or in underserved geographic areas. Traditionally, transportation system planning and evaluation has relied on indirect or incomplete metrics (like car ownership, commute times, or neighborhood “access scores”), which often miss the personal experience of transportation barriers. This gap limits the ability of transportation departments, city planners, public health professionals, and researchers to identify, target, and measure the effectiveness of mobility-related investments. With a growing push for equitable

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outcomes and data-driven planning—in the U.S. and globally—the need for efficient, validated tools to directly measure transportation insecurity has sharply increased. Trends such as increased focus on social determinants of health (SDOH), equity in public investment, and the integration of mobility with digital infrastructure systems have all underscored this market need.

INNOVATION

The TSI-3 takes an innovative, user-centered approach: rather than measuring only external factors (like vehicle access or neighborhood transit density), it asks individuals three simple questions about how often, in the past 30 days, they have (1) skipped trips, (2) been unable to leave home, or (3) experienced negative impacts on relationships, all due to transportation problems. Responses are scored to quickly determine whether a person is “transportation secure” or “transportation insecure.” Unlike older, longer indices, TSI-3 preserves predictive reliability and broad applicability but substantially reduces time, cost, and respondent fatigue. This efficiency enables its use in large-scale surveys, program evaluations, and recurring tracking studies where longer tools are impractical—allowing much wider adoption. By focusing on directly experienced symptoms (rather than just system inputs or outputs), TSI-3 uniquely captures “unmet demand” and the full range of human impact from inadequate mobility, providing actionable insight for public agencies and innovators.

ADDITIONAL INFORMATION

PROJECT LINKS: <https://transportation-insecurity.umich.edu/>

Department/ Lab: [Institute for Social Research](#)

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