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Data Article

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ABSTRACT

Participatory quantitative Health Impact Assessments (HIAs) in developing countries are rare partly due to data scarcity. This paper reports on primary data collected in the city of Port Louis to complete a HIA of urban transport planning in Mauritius. We conducted a full-chain participatory HIA to assess health impacts on the basis of a transport mode shift in Port Louis, Mauritius [1]. By applying mixed-methods, we estimated averted deaths per year and economic outcomes by assessing the health determinants of air pollution, traffic deaths and physical activity. The participatory quantitative HIA included [1] baseline data collection [2] co-validation of

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transport policy scenarios with stakeholders and [3] quantitative modelling of health impacts. We used the risk assessment method for HIA appraisal. The data can be reused for epidemiological analysis and different types of impact assessments.

Specifications Table

Subject	Public Health and Health Policy
Specific subject area	Health Impact Assessments (HIA): A mixed-methods to systematically assess the potential health effects of a proposed policy, programme, or project also in terms of distributive effects within a population (social and equity effects). HIAs enable identification of the most healthy, feasible and acceptable policy measures in cities facing environmental and health hazards and high levels of social inequity.
Type of data	Table
How data were acquired	We used one survey (see Supp A) to collect socio-economic and physical activity data and travel diaries. The interviewers used mobile phones and tablets to conduct the surveys. The interface used to record the data is the Askia Face android Software and the specific methods is the computer-assisted personal interviewing (CAPI).
Data format	Spreadsheet: .xls format, raw
Parameters for data collection	The data were collected in the 8 wards of the capital of Mauritius, Port Louis, including only residents. We considered that respondents may or may not travel to other districts on a daily basis. No interview was conducted with people only coming to work in the region and respondents working as taxi drivers, truck drivers or other travelling related jobs were also excluded.
Description of data collection	Data were collected between September to November 2018. The surveys were completed by experienced interviewers on tablets, with automatic trips summation and approximate distance measurement.
Data source location	Institution: Syntheses Mauritius City: Port Louis Country: Mauritius Tranquebar ward 4 = 20.1781° S, 57.5122° E La Cure ward 8 = 20.1553° S, 57.5336° E Ste Croix ward 7 = 20.1495° S, 57.5264° E Cite Vallijee/Cassis ward 3 = 20.1695° S, 57.4818° E/ 20.1650° S, 57.4868° E Roche Bois ward 6 = 20.1492° S, 57.5122° E Plaine Verte ward 5 = 20.1603° S, 57.5151° E Pointe aux Sables/ Tour Koenig ward 1 = 20.1742° S, 57.4486° E/ 20.1799° S, 57.4698° E Pailles ward 2 = 20.1929° S, 57.4882° E Bell Village ward 3 = 20.1741° S, 57.4832° E
Data accessibility	Repository name: Mendeley Data Data identification number: 10.17632 Direct URL to data: https://doi.org/10.17632/p6xkw92rfw.1 Citation: Thondoo, Meelan (2020), "HIA Port Louis Data", Mendeley Data, V1
Related research article	Thondoo M., Mueller N., Rojas-Rueda D., de Vries, D., Gupta, J., Nieuwenhuijsen M.J., 2020. Participatory Quantitative Health Impact Assessment of Urban Transport Planning: A Case Study from Eastern Africa, *Environment International (144)*. https://doi.org/10.1016/j.envint.2020.106027

Value of the Data

- The dataset supports health impact assessments in low and middle-income contexts. For the past 20 years, HIAs of urban and transport planning have been largely conducted in high-income countries [2]. There is an urgent need of applying them to regions and people facing rapid urbanization and highest burden of disease [3]. Such settings lack primary data for impact assessments and can benefit from evidence-based approaches to design local policies.

- Stakeholders from different sectors can benefit from these data; including health, transport, urban planning and sustainable development. Stakeholders from various interest groups can use this data to inform their actions; including citizen-based organisations, community groups, policy-makers, private and parastatal bodies.
- The data can be reused for gaps and impact analysis related to policies, interventions and projects in non-health sectors that impact on health and mortality. The data can be reused to assess the impacts of other exposure pathways for example, exposure to green and blue space and heat.
- This data can potentially make an impact on the Mauritian society by highlighting trends in physical activity and travel behaviours that can positively impact health in rapidly urbanizing settings.

1. Data Description

The dataset in this article describes socio-economic, physical activity and travel diary of 600 individuals in the city of Port Louis (Mauritius). In the Excel file: HIA_Travel_PA_Open_1707, the excel sheet 'travel data' describes each trip per individual with socio-economic characteristics (gender, age, age-group) and trip features (mode, purpose, duration, speed and distance). The excel sheet 'physical activity' describes the socio-economic profile for each individual (gender, age, age-group, professional status, ethnicity, address, education, marital status, household characteristics), walking and cycling behaviours (walking or cycling for more than 10 mins per day) and practice of physical activity following the IPAQ questionnaire (moderate, intense physical activity and duration).

2. Experimental Design, Materials and Methods

We conducted randomized sampling of 600 individuals residing in Port Louis ($n = 600$), adjusting statistical representativity in population subgroups for gender, age group, and socio-economic status. We used electronic mobile surveys to collect baseline data on demographics, physical activity and travel patterns. Physical activity questions were designed following IPAQ (International Physical Activity Questionnaire) short questionnaire [4] that assesses the frequency (days) and duration (minutes/hours) of a person's activity over the preceding seven days, and group activity levels into vigorous-, moderate-, and low-intensity levels. Travel patterns were collected using one full week-day diary and all trips completed between wake-up and bed-time. Each trip was documented in terms of travel mode, duration and distance. The survey captured the number of trips a respondent might have and which may in turn have many stopover points before reaching a destination and returning back home. The questionnaire recorded different starting points, stops and destinations. All transition points, destinations reached and returning trips have been accounted. By starting from the respondents' house as starting points, they are then asked in details in a sequence their change of positions by transport modes: walking, car, bicycle, bus among others. The questionnaires have been filled using Askia Face android Software interface. This method of data collection is termed as the computer-assisted personal interviewing (CAPI) where interviewers fill the questionnaires on answers given by the respondent in the face to face interviews instantaneously. The collected data has been then extracted from the Askia software platform where it is analysed transformed using excel and R statistical Software. Studio R was used to filter and analyse these data. Cases that were filtered and excluded from the final dataset included those with missing SES data (VCOMURA, VS5, etc.) and missing or incomplete trip data (QDEBUTRIPSEM y QFINTRIPSEM).

Ethics Statement

The study was approved by the National Ethics Committee of the Ministry of Health and Quality of Life in Mauritius (project protocol MHC/CT/NETH/THONM) and by the Ethical

Advisory Board of the Amsterdam Institute for Social Science Research (AISSR). Information and consent sheets were signed by all participants. The study does not anticipate any major risks in the involvement of participants. The process of gathering information had no potential harm on the informants because the investigation implied collecting informants' socio-economic data, physical activity and daily travel diaries.

CRediT Author Statement

The individual contributions of each authors are as follows: conceptualization, M.T., D.R.-R., J.G., D.H.d.V., and M.J.N.; methodology, M.T., N.N. and D.R.-R.; software, M.T., N.N.; validation, M.T., N.N., D.R.-R., J.G., D.H.d.V., and M.J.N.; formal analysis, M.T.; investigation, M.T.; resources, M.T.; data curation, M.T., N.N., and D.R.R; writing-original draft preparation, M.T., N.N; writing—review and editing, M.T., N.N., D.R.-R., J.G., D.H.d.V., and M.J.N.; visualization, M.T., N.N., D.R.-R., J.G., D.H.d.V., and M.J.N.; supervision, D.R.-R., J.G., D.H.d.V., and M.J.N.; project administration, N.A.; funding acquisition, M.T.

Declaration of Competing Interest

The authors declare no conflict of interest. The authors declare that they have no known competing financial interests or personal relationships which have, or could be perceived to have, influenced the work reported in this article.

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Supplementary Materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.dib.2020.106658.

References

[1] M. Thondoo, N. Mueller, D. Rojas-Rueda, D. de Vries, J. Gupta, M.J. Nieuwenhuijsen, Participatory quantitative health impact assessment of urban transport planning: A case study from Eastern Africa, Environ. Int. 144 (2020) 106027.
[2] N. Mueller, D. Rojas-Rueda, T. Cole-Hunter, A. de Nazelle, E. Dons, R. Gerike, et al., Health impact assessment of active transportation: a systematic review, Prev. Med. Baltim. 76 (2015) 103–114.
[3] M. Thondoo, D. Rojas-Rueda, J. Gupta, D.H. de Vries, M.J. Nieuwenhuijsen, Systematic literature review of health impact assessments in low and middle-income countries, Int. J. Environ. Res. Public Health 16 (11) (2019) 2018.
[4] C.L. Craig, A.L. Marshall, M. Sjöström, A.E. Bauman, M.L. Booth, B.E. Ainsworth, et al., International physical activity questionnaire: 12-country reliability and validity, Med. Sci. Sport Exerc. 35 (8) (2003) 1381–1395.