Healthy Liveable Cities (HLC) Literature Alert

Web of Science: March 2019
Record 1
Title: Close proximity to roadway and urbanicity associated with mental ill-health in older adults

Author(s): Pun, VC (Pun, Vivian C.)[ 1 ] ; Manjourides, J (Manjourides, Justin)[ 2 ] ; Suh, HH (Suh, Helen H.)[ 3 ]


Abstract: Evidence for the association between built environment and mental ill health, especially in older population where menial ill health is common, remains inconclusive. We examined the association of roadway distance and urbanicity, measured as percentage of urban land use within 1 km from participants residence, with mental ill-health in a longitudinal study of community-dwelling older adults in the United States between 2005 and 2006 and 2011-2012. We evaluated perceived stress, depression and anxiety symptoms using the Cohen's Perceived Stress Scale, the Center for Epidemiological Studies - Depression, and the Hospital Anxiety and Depression Scale anxiety subscale, respectively. Increment in roadway distance was significantly associated with -0.03 point (95% CI: -0.05, 0.01) change in depressive score, with loneliness and PM2.5 partially mediating the observed associations. Age, gender, race/ethnicity, and physical activity significantly modified the distance depression association. Anxiety was inversely associated with roadway distance (-0.02; 95% CI: -0.03, 0.00), though the associations became insignificant upon adjusting for road traffic or noise. Urbanicity was significantly associated with 029 (95% CI: 0.10, 0.57) point increase in depressive symptoms in multivariable model; the association was partly mediated by loneliness, physical activity, social support and air pollution. No association was found between roadway distance and perceived stress, and between urbanicity, and anxiety and perceived stress. Built environment was associated with mental ill health, partially through pathways related to air pollution and certain individual characteristics (e.g. loneliness). Our study warrants further examination of the mediation and interaction of the built environment-mental health association. (C) 2018 Published by Elsevier B.V.

Record 2
Title: Environmental public health risks in European metropolitan areas within the EURO-HEALTHY project

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Abstract: Urban areas in Europe are facing a range of environmental public health challenges, such as air pollution, traffic noise and road injuries. The identification and quantification of the public health risks associated with exposure to environmental conditions is important for prioritising policies and interventions that aim to diminish the risks and improve the health of the population. With this purpose in mind, the EURO-HEALTHY project used a consistent approach to assess the impact of key environmental risk factors and urban environmental determinants on public health in European metropolitan areas. A number of environmental public health indicators, which are closely tied to the physical and built environment, were identified through stakeholder consultation; data were collected from six European metropolitan areas (Athens, Barcelona, Lisbon, London, Stockholm and Turin) covering the period 2000-2014, and a health impact assessment framework enabled the quantification of health effects (attributable deaths) associated
with these indicators. The key environmental public health indicators were related to air pollution and certain urban environmental conditions (urban green spaces, road safety). The air pollution was generally the highest environmental public health risk; the associated number of deaths in Athens, Barcelona and London ranged between 800 and 2300 attributable deaths per year. The number of victims of road traffic accidents and the associated deaths were lowest in the most recent year compared with previous years. We also examined the positive impacts on health associated with urban green spaces by calculating reduced mortality impacts for populations residing in areas with greater green space coverage; results in Athens showed reductions of all-cause mortality of 26 per 100,000 inhabitants for populations with benefits of local greenspace. Based on our analysis, we discuss recommendations of potential interventions that could be implemented to reduce the environmental public health risks in the European metropolitan areas covered by this study.

Record 3

Title: Happiness is Greater in More Scenic Locations

Author(s): Seresinhe, CI (Seresinhe, Chanuki Illushka)[1,2] ; Preis, T (Preis, Tobias)[1,2,3] ; MacKerron, G (MacKerron, George)[4] ; Moat, HS (Moat, Helen Susannah)[1,2,3]

Source: SCIENTIFIC REPORTS Volume: 9 Article Number: 4498 DOI: 10.1038/s41598-019-40854-6

Published: MAR 14 2019 Document Type:Article

Abstract: Does spending time in beautiful settings boost people’s happiness? The answer to this question has long remained elusive due to a paucity of large-scale data on environmental aesthetics and individual happiness. Here, we draw on two novel datasets: first, individual happiness data from the smartphone app, Mappiness, and second, crowdsourced ratings of the “scenicness” of photographs taken across England from the online game Scenic-Or-Not. We find that individuals are happier in more scenic locations, even when we account for a range of factors such as the activity the individual was engaged in at the time, weather conditions and the income of local inhabitants. Crucially, this relationship holds not only in natural environments, but in built-up areas too, even after controlling for the presence of green space. Our results provide evidence that the aesthetics of the environments that policymakers choose to build or demolish may have consequences for our everyday wellbeing.

Record 4

Title: Physical activity, screen time, and outdoor learning environment practices and policy implementation: a cross sectional study of Texas child care centers

Author(s): Byrd-Williams, CE (Byrd-Williams, Courtney E.)[1] ; Dooley, EE (Dooley, Erin E.)[1] ; Thi, CA (Thi, Christina A.)[2] ; Browning, C (Browning, Carli)[2] ; Hoelscher, DM (Hoelscher, Deanna M.)[1]


Published: MAR 7 2019 Document Type:Article

Abstract: Background Early care and education (ECE) centers are important for combating childhood obesity. Understanding policies and practices of ECE centers is necessary for promotion of healthy behaviors. The purpose of this study is to describe self-reported practices, outdoor environment aspects, and center policies for physical activity and screen time in a statewide convenience sample of non-Head Start Texas ECE centers. Methods Licensed home and child care centers in Texas with email addresses publicly available on the Department of Family and Protective Services website (N=6568) were invited to participate in an online survey. Descriptive statistics of self-reported practices, policies, and outdoor learning environment are described. Results 827 surveys were collected (response rate=12.6%). Exclusion criteria yielded a cross-sectional sample of 481 center-only respondents. >80% of centers meet best practice recommendations for screen time practices for infants and toddlers, although written policies were low (M=1.4 policies, SD=1.65, range=0-6). For physical activity, <30% meet best practice recommendations with M=3.9 policies (SD=3.0, range=0-10) policies reported. Outdoor learning environment indicators (M=5.7 policies, SD=2.5, range=0-12) and adequate play settings, storage (<40%),
and greenery (<20%) were reported. Conclusions This statewide convenience sample of non-Head Start Texas ECE centers shows numerous opportunities for improvement in practices and policies surrounding outdoor environments, physical activity, and screen time. With less than half of centers meeting the recommendations for physical activity and outdoor learning environments, dedicating resources to help centers enact and modify written policies and to implement programs to improve their outdoor learning environments could promote physical activity and reduce sedentary time of children.

Record 5

**Title:** Neighborhood characteristics as determinants of healthcare utilization - a theoretical model

**Author(s):** Mohnen, SM (Mohnen, Sigrid M.) [1]; Schneider, S (Schneider, Sven) [2]; Droomers, M (Droomers, Mariel) [3]

**Source:** HEALTH ECONOMICS REVIEW Volume: 9 Article Number: UNSP 7 DOI: 10.1186/s13561-019-0226-x Published: MAR 6 2019 Document Type:Article

**Abstract:** Background We propose using neighborhood characteristics as demand-related morbidity adjusters to improve prediction models such as the risk equalization model. Results Since the neighborhood has no explicit place’ in healthcare demand models, we have developed the Neighborhood and healthcare utilization model to show how neighborhoods matter in healthcare utilization. Neighborhood may affect healthcare utilization via (1) the supply-side, (2) need, and (3) demand for healthcare - irrespective of need. Three pathways are examined in detail to explain how neighborhood characteristics influence healthcare utilization via need: the physiological, psychological and behavioral pathways. We underpin this theoretical model with literature on all relevant neighborhood characteristics relating to health and healthcare utilization. Conclusion Potential neighborhood characteristics for the risk equalization model include the degree of urbanization, public and open space, resources and facilities, green and blue space, environmental noise, air pollution, social capital, crime and violence, socioeconomic status, stability, and ethnic composition. Air pollution has already been successfully tested as an important predictive variable in a healthcare risk equalization model, and it might be opportune to add more neighborhood characteristics.

Record 6

**Title:** Valuing individual characteristics and the multifunctionality of urban green spaces: The integration of sociotope mapping and hedonic pricing

**Author(s):** Czembrowski, P (Czembrowski, Piotr) [1]; Laszkiewicz, E (Laszkiewicz, Edyta) [1]; Kronenberg, J (Kronenberg, Jakub) [1]; Engstrom, G (Engstrom, Gustav) [2]; Andersson, E (Andersson, Erik) [3]

**Source:** PLOS ONE Volume: 14 Issue: 3 Article Number: e0212277 DOI: 10.1371/journal.pone.0212277 Published: MAR 6 2019 Document Type:Article

**Abstract:** We categorize Stockholm’s urban green spaces according to the use values and social meanings they support, based on a sociotope mapping, and estimate their impact on property prices with a hedonic pricing model. The approach allows us to identify the most and least desired green space characteristics (attributes) and to assess the willingness to pay for the multifunctionality of green spaces. To do this, we test the following hypotheses, each with a separate hedonic pricing model: .The proximity of all green space characteristics increases the property prices, but the specific monetary value of these characteristics differs; . The multifunctionality of green spaces is well recognized and highly valued by real estate buyers. We find partial support for the first hypothesis: the green space attributes of "aesthetics", "social activity" and "nature" seem to be desired by real estate buyers, whereas "physical activity" and "play" seem not to be desired. We also find support for the second hypothesis: the higher the number of characteristics an urban green space has, the stronger its impact on property prices. This study furthers the discussion on the economic value of urban green spaces by assigning monetary value to their perceived character and use values. In doing so, it highlights the need to understand green spaces both as ecological features and social constructs.
Record 7

Title: Where are children and adults physically active and sedentary? - a rapid review of location-based studies

Author(s): Prince, SA (Prince, Stephanie A.)[ 1,2 ] ; Butler, GP (Butler, Gregory P.)[ 1 ] ; Rao, DP (Rao, Deepa P.)[ 1 ] ; Thompson, W (Thompson, Wendy)[ 1 ]

Source: HEALTH PROMOTION AND CHRONIC DISEASE PREVENTION IN CANADA-RESEARCH POLICY AND PRACTICE Volume: 39 Issue: 3 Pages: 67-103 DOI: 10.24095/hpcdp.39.3.01 Published: MAR 2019 Document Type:Review

Abstract: Introduction: Geographical positioning systems (GPS) have the capacity to provide further context around where physical activity (PA) and sedentary time (ST) are accrued especially when overlaid onto objectively measured movement. The objective of this rapid review was to summarize evidence from location-based studies which employed the simultaneous use of GPS and objective measures of PA and/or ST. Methods: Six databases were searched to identify studies that employed the simultaneous use of GPS and objective measures of PA or ST to quantify location of movement. Risk of bias was assessed, and a qualitative synthesis completed. Results: Searching identified 3446 articles; 59 were included in the review. A total of 22 studies in children, 17 in youth and 20 in adults were captured. The active transportation environment emerged as an important location for moderate-to-vigorous intensity physical activity (MVPA) in children, youth and adults. In children and youth, the school is an important location for MVPA, especially the schoolyard for children. Indoor locations (e.g., schools, homes) appear to be greater sources of lighter intensities of PA and ST. The review was limited by a lack of standardization in the nomenclature used to describe the locations and methods, as well as measures of variance. Conclusion: Evidence suggests that the active transportation environment is a potentially important contributor of MVPA across an individual's lifespan. There is a need for future location-based studies to report on locations of all intensity of movement (including minutes and proportion) using a whole-day approach in larger representative samples.

Record 8

Title: Effect of Poverty on Mental Health of Children in Rural China: The Mediating Role of Social Capital

Author(s): Li, CK (Li, Chunkai)[ 1 ] ; Wu, QB (Wu, Qiaobing)[ 2 ] ; Liang, ZR (Liang, Zurong)[ 1 ]

Source: APPLIED RESEARCH IN QUALITY OF LIFE Volume: 14 Issue: 1 Pages: 131-153 DOI: 10.1007/s11482-017-9584-x Published: MAR 2019 Document Type:Article

Abstract: Underprivileged children are a relatively special vulnerable group in rural China, but the relationship between poverty and children’s mental health has been rarely examined. This study aimed to investigate the effect of poverty on children's mental health and the mediating role of social capital in their family, peer, school, and community level. Data used in this study were collected in 2015 from a school-based survey of 1314 children in grades 4-9 through a multi-stage cluster random sampling method in Xiushui, a poverty-stricken city in Mainland China. The result of structural equation modeling indicated that poverty elicited a significant predictive effect on children's negative and positive mental health. Family social capital and peer social capital played intermediary effects between poverty and children's mental health. However, the mediating effects of school and community social capital are not significant. The implications of these findings on theory, social policy, and social work services were also discussed.

Record 9

Title: Neighborhood Physical Environments, Recreational Wellbeing, and Psychological Health

Author(s): Kwon, M (Kwon, Mizzo)[ 1 ] ; Pickett, AC (Pickett, Andrew C.)[ 2 ] ; Lee, Y (Lee, Yunsoo)[ 3 ] ; Lee, S [Lee, SeungJong][ 4 ]

Source: APPLIED RESEARCH IN QUALITY OF LIFE Volume: 14 Issue: 1 Pages: 253-271 DOI: 10.1007/s11482-018-9591-6 Published: MAR 2019 Document Type:Article
**Abstract:** The physical environment in which individuals live has important implications for their access to resources and services. The current study examined the role of several features of neighborhoods, such as perceived walkability and neighborhood appearance, in promoting recreational wellbeing, and resulting in impacts on physical wellbeing, happiness, and life satisfaction of residents. Survey responses (N=1392) were collected in two distinct geographical areas and, using structural equation modeling, relationships between neighborhood physical environments and resident outcomes were explored. Results indicated perceived walkability (access to services) and neighborhood appearance (upkeep and attractiveness) played a significant role in increasing recreational wellbeing. Also, recreational wellbeing was positively related to individuals' physical wellbeing. Lastly, physical wellbeing was positively associated with happiness and life satisfaction. Together, these findings suggest community planners could use several practical neighborhood improvements to improve the overall health, happiness, and life satisfaction of their residents.

**Record 10**

**Title:** Station avenue: high-speed rail's missing link. Assessing pedestrian city-station routes for edge stations in Spanish small cities

**Author(s):** Moyano, A (Moyano, Amparo)[1 ]; Coronado, JM (Coronado, Jose M.)[1 ]; Ruiz, R (Ruiz, Rita)[1 ]; Romero, V (Romero, Vicente)[1 ]

**Source:** JOURNAL OF HOUSING AND THE BUILT ENVIRONMENT Volume: 34 Issue: 1 Pages: 175-193 DOI: 10.1007/s10901-018-9621-6 Published: MAR 2019 Document Type:Article

**Abstract:** High-speed rail edge stations, which are located within the urban fabric limits of a city, have generally a good access through motorised transportation modes while the pedestrian/bicycle access becomes, in many cases, very difficult. This paper assesses the quality of pedestrian routes linking high-speed rail edge stations to the city centre, considering physical aspects such as footpaths width, characteristics of the built environment or detours at street crossings. The assessment demonstrates that a pedestrian route could be redesigned to minimise discontinuities and to improve walkability, extending the walkable distance threshold through an adequate design. The proposed methods could provide a useful tool for cities to identify the most appropriate footpath to create convenient and legible pedestrian routes with walkable promenades for edge stations, because, in general, there are no specific strategies or policies to favour these walkable connections. In many cases, these edge stations are hidden city gates and the station-city pedestrian connection is the missing link in this intermodal transport chain.

**Record 11**

**Title:** Distance from home to the nearest park and the use of the parks for physical activity: the mediator role of road safety perception in adolescents

**Author(s):** Dias, AF (Dias, A. F.); Gaya, AR (Gaya, A. R.); Brand, C (Brand, C.); Pizarro, Al (Pizarro, A. I.); Fochesatto, CF (Fochesatto, C. F.); Mendes, TM (Mendes, T. M.); Mota, J (Mota, J.); Santos, MPM (Maia Santos, M. P.); Gaya, ACA (Gaya, A. C. A.)

**Source:** PUBLIC HEALTH Volume: 168 Pages: 9-16 DOI: 10.1016/j.puhe.2018.11.021 Published: MAR 2019 Document Type:Article

**Abstract:** Objective: The objective of the study is to examine whether adolescents' road safety perception (RSP) acts as a mediator on the association between the distance from home to the nearest park and the use of the parks for physical activity (PA). Study design: This is a cross-sectional study. Methods: The evaluation was through a random sample of 1130 adolescents (534 male), corresponding to 47.3%, 14-20 years old, from Porto Alegre, Brazil. RSP was assessed through some questions of the Neighborhood Environment Walkability Scale for Youth. Park use, socioeconomic status, age, and sex were measured using a questionnaire. Distance from home to the nearest park was evaluated through geographic information system. Data analysis was performed using Pearson correlation, and linear regression models were fitted as per the Baron and Kenny procedures for mediation analyses. All analyses were adjusted for
sex and socioeconomic status. Results: Road safety perception is independently associated with less distance from home to the nearest park (P = 0.04) and use of the parks for PA (P = 0.02). Road safety perception is a mediator and explains 16% of the association between park use and distance from home to the park (indirect Effect = -0.9966; 95% confidence interval [CI]: 119.3733-2.2455). Conclusion: Our findings indicated that RSP is a mediator on the association between the distance from home to the nearest park and the use of the parks for PA. Future studies should take this into consideration frequency and intensity of PA and other environmental characteristics, such as crime, aesthetics, and neighborhood facilities.

Record 12

Title: Enhancing safe routes to school programs through community-engaged citizen science: two pilot investigations in lower density areas of Santa Clara County, California, USA

Author(s): Rodriguez, NM (Rodriguez, Nicole M.)[ 1 ] ; Arce, A (Arce, Alisa)[ 2 ] ; Kawaguchi, A (Kawaguchi, Alice)[ 2 ] ; Hua, J (Hua, Jenna)[ 1 ] ; Broderick, B (Broderick, Bonnie)[ 2 ] ; Winter, SJ (Winter, Sandra J.)[ 1 ] ; King, AC (King, Abby C.)[ 1,3,4 ]

Source: BMC PUBLIC HEALTH Volume: 19 Article Number: 256 DOI: 10.1186/s12889-019-6563-1 Published: MAR 1 2019 Document Type:Article

Abstract: BackgroundWhile promoting active commuting to school can positively affect children's daily physical activity levels, effectively engaging community members to maximize program impact remains challenging. We evaluated the initial utility of adding a technology-enabled citizen science engagement model, called Our Voice, to a standard Safe Routes to School (SRTS) program to enhance program engagement activities and student travel mode behavior.MethodsIn Investigation 1, a prospective controlled comparison design was used to compare the initial year of the Santa Clara County Public Health Department's SRTS program, with and without the Our Voice engagement model added, in two elementary schools in Gilroy, California, USA. School parents served as Our Voice citizen scientists in the SRTS + Our Voice school. In Investigation 2, the feasibility of the combined SRTS + Our Voice methods was evaluated in a middle school in the same district using students, rather than adults, as citizen scientists. Standard SRTS program engagement measures and student travel mode tallies were collected at the beginning and end of the school year for each school.ResultsIn the elementary school investigation (Investigation 1), the SRTS + Our Voice elementary school held twice as many first-year SRTS planning/encouragement events compared to the SRTS-Alone elementary school, and between-school changes in walking/biking to school rates favored the SRTS + Our Voice school (increases of 24.5% vs. 2.6%, P<.001). The Investigation 2 results supported the feasibility of using students to conduct SRTS + Our Voice in a middle school-age population.ConclusionsThe findings from this first-generation study indicated that adding a technology-enabled citizen science process to a standard elementary school SRTS program was associated with higher levels of community engagement and walking/biking to school compared to SRTS alone. The approach was also found to be acceptable and feasible in a middle school setting.

Record 13

Title: Public spaces and happiness: Evidence from a large-scale field experiment

Author(s): Benita, F (Benita, Francisco)[ 1 ] ; Bansal, G (Bansal, Garvit)[ 1 ] ; Tuncer, B (Tuncer, Bige)[ 1 ]


Abstract: This study examines the relationships between public spaces, immediate environment and momentary subjective wellbeing (M-SWB). The empirical findings are based on a unique dataset collected from tens of thousands of students in Singapore. The students wore a sensor for one week, and happy moments were captured as well as geospatial an environmental data throughout the country. This is a large-scale in-the-wild user study. The findings provide weak empirical evidence that visiting parks and community centers increase the probability of experiencing M-SWB compared with commercial areas. In
line with previous studies, proximity to natural influencers such as green-, blue spaces or reservoirs was found to be not statistically significant. On the other hand, immediate noise levels and air temperature were strongly associated with M-SWB. The unique contribution of the paper is the estimation of place-, environment-, and personal-effects on momentary happiness using nearly-real time data.

Record 14

Title: Everyday wild: Urban natural areas, health, and well-being

Author(s): Cheesbrough, AE (Cheesbrough, Alison E.)[ 1 ] ; Garvin, T (Garvin, Theresa)[ 1 ] ; Nykiforuk, CIJ (Nykiforuk, Candace I. J.)[ 2 ]

Source: HEALTH & PLACE Volume: 56 Pages: 43-52 DOI: 10.1016/j.healthplace.2019.01.005 Published: MAR 2019 Document Type:Article

Abstract: Cities are increasingly home to the world's population. Creating healthy and vibrant cities is one way to positively contribute to the health of populations. Parks and green spaces in cities contribute many health benefits. This case study explored the perceived health and well-being effects of access to Natural Area Parks in Edmonton, Canada through photovoice interviews with 33 participants. The research found the wild aspects of the parks of particular importance. Critically, the therapeutic value of the park emerged from the totality of the experience rather than from its individual components. Access to wilderness increased opportunities for relaxation, deep connection, and reflection.

Record 15

Title: Perceived neighborhood social cohesion moderates the relationship between neighborhood structural disadvantage and adolescent depressive symptoms

Author(s): Dawson, CT (Dawson, Christyl T.)[ 1 ] ; Wu, WS (Wu, Wensong)[ 2 ] ; Fennie, KP (Fennie, Kristopher P.)[ 1 ] ; Ibanez, G (Ibanez, Gladys)[ 1 ] ; Cano, MA (Cano, Miguel A.)[ 1 ] ; Pettit, JW (Pettit, Jeremy W.)[ 3 ] ; Trepka, MJ (Trepka, Mary Jo)[ 1 ]


Abstract: There is a dearth of research exploring the moderating role of the social environment on neighborhood structural disadvantage and depressive symptoms, particularly among adolescents. Therefore, we examined if adolescent perceptions of neighborhood social cohesion and safety moderated the association between neighborhood structural disadvantage and adolescent depressive symptoms. This cross-sectional study used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). The study sample consisted of 12,105 adolescents enrolled in 9th-12th grades during the 1994-1995 school year across the United States (U.S.). Mixed effects multilevel modeling was used to determine if adolescent perceptions of neighborhoods moderated the relationship between neighborhood structural disadvantage and adolescent depressive symptoms. Results showed that perceived neighborhood social cohesion moderated the relationship between neighborhood structural disadvantage and adolescent depressive symptoms (p <= 0.001). At higher levels of perceived neighborhood social cohesion, neighborhood structural disadvantage was associated with decreased depressive symptoms. Findings suggest that improving perceived neighborhood social cohesion may decrease adolescent depressive symptoms, particularly in neighborhoods with high disadvantage. This aspect of the neighborhood social environment may serve as a target for structural and other interventions to address the growing burden of depression among adolescents.

Record 16

Title: The potential for walkability to narrow neighbourhood socioeconomic inequalities in physical function: A case study of middle-aged to older adults in Brisbane, Australia
Residents of disadvantaged neighbourhoods have poorer physical function than their advantaged counterparts, although the reasons for this remain largely unknown. We examined the moderating effects of walkability in the relationship between neighbourhood disadvantage and physical function using 2013 cross-sectional data from 5115 individuals aged 46-72 living in 200 neighbourhoods in Brisbane, Australia. The relationship between neighbourhood disadvantage and physical function differed by levels of walkability: positive associations as levels of walkability increased for those living in more disadvantaged neighbourhoods, and no difference for those living in more advantaged neighbourhoods. Further work is required to better understand the underlying mechanisms.

Greenspace is important for physical and mental health. Low-income, multi-ethnic populations in deprived urban areas experience several barriers to using greenspace. This may exacerbate health inequalities. The current study explored structural and individual determinants of greenspace use amongst parents of young children in an urban, deprived, multi-cultural area situated in the North of England, UK. Semi-structured in-depth interviews and focus group discussions were conducted with 30 parents of children aged 0-3 between December 2016 and May 2017 from a range of ethnic groups. Thematic analyses were informed by the Human Health Habitat Map and the Theoretical Domains Framework. The results show that whilst all families recognised the benefits of greenspaces, use was bounded by a variety of structural, community, and individual determinants. Individual determinants preventing use included lack of knowledge about where to go, or how to get there and confidence in managing young children whilst outdoors. Fear of crime, antisocial behaviour and accidents were the overriding barriers to use, even in high quality spaces. Social and community influences both positively encouraged use (for example, positive social interactions, and practical support by others) and prevented use (antisocial or inappropriate behaviours experienced in greenspace). The built environment was a key barrier to use. Problems related to unsuitable or unsafe playgrounds, no gardens or safe areas for children’s play, poor accessibility, and lack of toilets were identified. However, the value that parents and children placed on natural blue and green features was an enabler to use. Contextual influences included external time pressures, difficulties of transporting and caring for young children and poor weather. Multi-sectoral efforts are needed to tackle the uneven playing field experienced by null-ethnic, urban, deprived communities. Initiatives to increase use should tackle structural quality issues, addressing fears about safety, whilst simultaneously encouraging communities to reclaim their local greenspaces.
Abstract: Addressing gaps in evidence on causal associations, this study tested the hypothesis that better access to recreational places close to home helps people to maintain lower body mass index (BMI) using a retrospective longitudinal study design and up to 6 years of data for the same individuals (1,522,803 men and 183,618 women). Participants were military veterans aged 20-64 who received healthcare through the U.S. Department of Veterans Affairs in 2009-2014 and lived in a metropolitan area. Although there were cross-sectional associations, we found no longitudinal evidence that access to parks and fitness facilities was associated with BMI for either men or women in the full sample or in subgroups of residential movers and stayers. Our findings suggest that simply increasing the number of parks and fitness facilities may not be enough to achieve needed population-level reductions in weight.

Record 19

Title: Neighborhood built environment associations with adolescent's location-specific sedentary and screen time

Author(s): Bejarano, CM (Bejarano, Carolina M.)[ 1 ] ; Carlson, JA (Carlson, Jordan A.)[ 2 ] ; Cushing, CC (Cushing, Christopher C.)[ 1,3 ] ; Kerr, J (Kerr, Jacqueline)[ 4 ] ; Saelens, BE (Saelens, Brian E.)[ 5,6 ] ; Frank, LD (Frank, Lawrence D.)[ 7 ] ; Glanz, K (Glanz, Karen)[ 8,9 ] ; Cain, KL (Cain, Kelli L.)[ 4 ] ; Conway, TL (Conway, Terry L.)[ 4 ] ; Sallis, JF (Sallis, James F.)[ 4 ]


Published: MAR 2019 Document Type:Article

Abstract: Less is known about how neighborhood environments relate to sedentary time as compared to physical activity. This study examined relations of perceived and objective neighborhood environments with TV time, total screen time, total sedentary time, sedentary time at home, sedentary time in the home neighborhood, and time spent at home, in 524 12-16 year olds. Better perceived aesthetics and a perceived neighborhood environment index were related to less TV and screen time, and greater cul-de-sac density was related to less total and home sedentary time. Greater street connectivity, mixed land use, and an objective neighborhood environmental index were related to more total sedentary time. Findings suggest that some neighborhood environment attributes may not have the same potential influences on limiting sedentary time as they do for supporting physical activity.

Record 20

Title: Development and testing of a multicomponent obesogenic built environment measure for youth using kernel density estimations


Published: MAR 2019 Document Type:Article

Abstract: Innovative measures can advance the measurement and understanding of obesogenic environments on health outcomes. In a southeastern US county, public parks (n = 103) were scored using detailed audit data, while two databases of food stores and restaurants were compiled (n = 1112). Using kernel density estimations, separate raster (pixel) surfaces were created for each built environment component. Each surface was scaled and summed to create an obesogenic environment measure. Health-promoting built environments were related to lower weight status in youth (beta = - 0.25, p < 0.05), with differences by urban and non-urban areas. This study demonstrates a unique method to quantify and WA obesogenic built environments.

Record 21
Title: Green space and serious psychological distress among adults and teens: A population-based study in California

Author(s): Wang, P (Wang, Pan) [1]; Meng, YY (Meng, Ying-Ying) [1]; Lam, V (Lam, Vanessa) [2,3]; Ponce, N (Ponce, Ninez) [1,3]


Abstract: There has been mounting evidence for the beneficial effect of green space on mental health among adults, but studies on the same topics are lacking for teens in the US. This study aimed to fill in this research gap by utilizing data from California Health Interview Survey (CHIS) 2011-2014. A total of 81,102 households (composed of 4538 teens and 81,102 adults) were retained for main analyses. Surrounding greenness was assessed by the Normalized Difference Vegetation Index (NDVI) within varying buffers of home residence. Survey logistic regressions accounted for sampling weights and design were conducted to examine the effects of greenness on serious psychological distress (SPD), adjusted for major socio-demographic factors, neighborhood socioeconomic status (SES) and co-respondent's psychological distress level within the same household. An inter-quartile increment of NDVI in 350 m buffer predicted decreased odds of SPDs by 36% in teens (OR = 0.64, 95% CI = [0.46, 0.91]). Mediation analyses revealed that this association remained almost unchanged even after adjusting for social cohesion. The NDVI-SPD association of adults was found to be significant only in the older group (OR = 0.81, 95% CI = [0.68, 0.95]). This study is one of the first population-based US studies extending the epidemiological evidence for benefits of green space on mental health from adults to teens.

Record 22

Title: Context Matters: Adolescent Neighborhood and School Influences on Young Adult Body Mass Index

Author(s): Niu, L (Niu, Li) [1]; Hoyt, LT (Hoyt, Lindsay Till) [1]; Pachucki, MC (Pachucki, Mark C.) [2]

Source: JOURNAL OF ADOLESCENT HEALTH Volume: 64 Issue: 3 Pages: 405-410 DOI: 10.1016/j.jadohealth.2018.09.024 Published: MAR 2019 Document Type:Article

Abstract: Purpose: Both schools and neighborhoods play important roles in determining adolescent weight status, but little is known about their relative importance, particularly in predicting long-term weight outcomes. We assessed the impacts of both school and neighborhood socioeconomic composition, social connectedness, and built environment during adolescence on weight status in young adulthood. Methods: The study sample consisted of 14,625 respondents from Waves I and IV of the National Longitudinal Study of Adolescent to Adult Health. Data were analyzed using cross-classified multilevel modeling to examine the joint effect of adolescents' school and neighborhood predictors on body mass index (BMI) 13 years later. Results: Living in a neighborhood with lower average parent education during adolescence, and attending a school with lower average parent education, were each associated with higher BMI in young adulthood. Living in a neighborhood with more physical activity resources predicted lower young adult BMI, independent of adolescent weight, parent obesity status, and demographic characteristics. School physical activity resources and perceptions of social connectedness (in the school or neighborhood) were not significantly associated with young adult BMI. Conclusions: These findings highlight the importance of school and neighborhood socioeconomic composition during adolescence on young adult weight status. Results also suggest that improving neighborhood infrastructure may promote healthy weight.

Record 23

Title: Atmospheres, landscapes and nature: Off-road runners' experiences of well-being

Author(s): MacBride-Stewart, S (MacBride-Stewart, Sara) [1]

Source: HEALTH Volume: 23 Issue: 2 Pages: 139-157 Special Issue: SI DOI: 10.1177/1363459318785675 Published: MAR 2019 Document Type:Article
Abstract: This article reflects on the relations between health and natural landscapes. The study explores how the landscape context - its textual and sensory aesthetics - positively shapes experiences and perceptions of the landscape, for those people who seek out natural environments for health. While health promotion is designated along the lines of encouraging choice or improving access to natural environments, this article wants to show how physical activities are intertwined with atmospheres and affects emanating from the natural and human world. An in-depth case-study of trail running across two sites (New Zealand, United Kingdom) is used to analyse the interconnections between health landscapes. It finds that when participants say that landscape 'matters' for health, they are referring to: (1) aesthetics and feelings, (2) flexibility and adaptiveness and (3) exploration and adventure. Avoiding the conclusion that the landscape is merely a resource for health, the analysis confirms that it is the complex of spaces, social practices, along with their physical fleshy selves, minds and emotions, and the particular quality of the earth beneath them, that gives rise to positively perceived health, for both immediate and enduring benefit.

Record 24

Title: Neighborhood Parks and Recreationists' Exposure to Ozone: A Comparison of Disadvantaged and Affluent Communities in Los Angeles, California

Author(s): Winter, PL (Winter, Patricia L.)[1]; Padgett, PE (Padgett, Pamela E.)[1]; Milburn, LAS (Milburn, Lee-Anne S.)[2]; Li, WM (Li, Weimin)[2]


Abstract: Urban parks are valued for their benefits to ecological and human systems, likely to increase in importance as climate change effects continue to unfold. However, the ability of parks to provide those myriad benefits hinges on equitable provision of and access to green spaces and their environmental quality. A social-ecological approach was adopted in a study of urban park use by recreationists in the City of Los Angeles, contrasting two affluent and two disadvantaged communities situated in coastal and inland zones. Twenty-four days of observations distributed across morning and afternoon time blocks were gathered, with observations in each day drawn from a pair of affluent and disadvantaged community parks. Observers noted location, gender, age, ethnicity/race, and level of physical activity of each visitor encountered during four scheduled observation sweeps on each day of field work. In addition, ozone dose exposure was measured through passive monitoring. Ozone dose exposure was calculated using average hourly ozone in ppb multiplied by METS (metabolic expenditures). Dose exposure was significantly higher in the disadvantaged community parks (with majority Latino use). Findings suggest that additional monitoring in disadvantaged communities, especially inland, may be prudent to facilitate community-based information as well as to assess the degree of potential impact over time. Additionally, mitigative strategies placed in urban parks, such as increased tree canopy may help to reduce the degree of risk and improve community resilience. Future research examining the positive outcomes from physically active use of urban parks may benefit from adopting a nuanced approach in light of the present findings.

Record 25

Title: Transit oriented development among metro station areas in Shanghai, China: Variations, typology, optimization and implications for land use planning

Author(s): Li, ZK (Li, Zekun)[1]; Han, ZX (Han, Zixuan)[1]; Xin, J (Xin, Jing)[2]; Luo, X (Luo, Xin)[2]; Su, SL (Su, Shiliang)[1,3]; Weng, M (Weng, Min)[1]


Abstract: Transit Oriented Development (TOD), the integration of transport system with land use, has gained considerable priorities in planning strategies towards urban sustainability. To accrue a better overall leverage of the benefits arising from TOD practice, it is necessary to explore the variations and typology
among TODs. This paper extends the classic 'node (transport)-place (land use)' model by incorporating the oriented characteristics that represent the morphological and functional ties between transport and land use. The model is applied to the case of Shanghai, China. Fuzzy AHP (Analytic Hierarchy Process) is used to construct the indicators system of each dimension (node, tie and place) in the model and typology among TODs is divided by SOM (self-organizing map). We find that the TOD index value declines from the urban center to the outskirts of the city obviously. Four typologies are identified among TODs, including the Integrated (all high node, tie and place index value), the Functionally place-developed (low node index value and high tie and place index value), the Morphologically node-developed (high node index value and low tie and place index value) and the Dispersed (all low node, tie and place index value). Based on the evaluation, we put forward an optimization plan for the areas with low TOD index values, which are consistent with the planned lines under construction. All the methods demonstrated in this study are easy to perform and can be widely applied to the assessment of TOD typologies worldwide. This study produces some generalized knowledge that are useful for implementing TOD practice within land use planning.

Record 26
Title: San Francisco's neighborhoods and auto dependency
Author(s): Lewis, S (Lewis, Sherman)[ 1 ] ; del Valle, EG (del Valle, Emilio Grande)[ 2 ]
Document Type:Article
Abstract: Suburbanization and auto dependency have major problems. An alternative, the walkable neighborhood system, is one of a number of ideas designed to increase walking and other non-auto modes (NAM), sustainability, economic productivity, physical health, and livability. NAM includes walk, bicycle, public transit, and public cars (taxi, e-hail ride, car share, car rental). A walkable neighborhood system has a high population density and complementary features that support local business and transit within an attractive walking distance. For a case study, we look at San Francisco, a world class city with high densities comparable to European cities. This article for the first time delineates neighborhoods in terms of walkable areas and correlations with four indicators of sustainability. We delineated 85 walking-area neighborhoods using ArcMAP and analyzed their correlations with NAM, vehicle miles traveled, walk score, and food sources. The hypothesis of a very high correlation of density and NAM is confirmed: densities over 50 persons per neighborhood acre support NAM above 60%. An exponential decrease in auto dependency with density is confirmed, but with a low correlation. The transition is gradual and uneven among neighborhoods. The large variation of performance among neighborhoods with very similar densities needs more research into complementary features. The correlation of density with vehicle miles traveled is very high, - 0.807. The correlation of density with Walk Score is moderate, due to Walk Score being concerned with walkability and not with the underlying land uses supporting sustainability. The correlation of density with food sources is very high and the highest of the correlations we found.

Record 27
Title: The urban vitality conditions of Jane Jacobs in Barcelona: Residential and smartphone-based tracking measurements of the built environment in a Mediterranean metropolis
Author(s): Delclos-Alío, X (Delclos-Alío, Xavier)[ 1 ] ; Gutierrez, A (Gutierrez, Aaron)[ 3 ] ; Miralles-Guasch, C (Miralles-Guasch, Carme)[ 1,2 ]
Document Type:Article
Abstract: Jane Jacobs has presented theories on the attributes that the built environment of cities ought to present in order to ensure pedestrian activity, which she considers to be the main reflection of vibrant street life. While her theses were mainly constructed around the neighborhood as the unit in which these urban conditions should be met, it has to be considered that the main part of daily walking activity occurs beyond this rather limited spatial context. With this in mind, this paper analyzes the urban vitality ideas of Jacobs,
not only within the immediate residential context of individuals, but also at the level of the environment in which daily walking itineraries are conducted. The study is based on a GIS-based data synthesis of the ideas of Jacobs together with data extracted during a smartphone tracking experiment in Barcelona. Results indicate that while the study participants walk in environments that are significantly more vital than their residential contexts, this difference is not homogeneous across the different types of urban morphologies that are characteristic of the Mediterranean type of metropolis.

Record 28
Title: Worksite Built Environment and Objectively Measured Physical Activity While at Work: An Analysis Using Perceived and Objective Walkability and Greenness

Author(s): Marquet, O (Marquet, Oriol)[ 1 ] ; Hipp, AJ (Hipp, Aaron J.)[ 2 ]

Source: JOURNAL OF ENVIRONMENTAL HEALTH Volume: 81 Issue: 7 Pages: 20-26 Published: MAR 2019 Document Type:Article

Abstract: The role of worksite environments in promoting physical activity (PA) remains largely unexplored. With workers in the U.S. spending half of their waking day in their work environment, the workplace could be an important venue for the promotion of health and PA. We examined associations between PA gained while at work and the built environment around the workplace. We measured PA using accelerometer devices in a sample of 119 participants of the Supports at Home and Work for Maintaining Energy Balance study, with a wear time of 1 week. Measures of built environment included perceived walkability, two different measures of objective walkability, and greenness. Working in an environment perceived as walkable was associated with more minutes of PA while at work in all models. When measured objectively, walkability was found significant in the adjusted models controlling for both home walkability and amount of PA gained in nonwork related activities. Greenness of the work environment was found nonsignificant. Findings suggest investing in walkable environments around the workplace or having worksites located in walkable areas can contribute to increased minutes of PA for employed people in the U.S.

Record 29
Title: Supporting individuals' healthy eating requires genuine engagement with communities

Author(s): Hancock, C (Hancock, C.)[ 1 ] ; Clarke, SK (Clarke, S. K.)[ 1 ] ; Stevens, DE (Stevens, D. E.)[ 2 ]

Source: NUTRITION BULLETIN Volume: 44 Issue: 1 Pages: 92-99 DOI: 10.1111/nbu.12364 Published: MAR 2019 Document Type:Article

Abstract: C3 Collaborating for Health (C3) aims to counter the non-communicable disease (NCD) epidemic by focusing on the three big risk factors: tobacco use, poor diet and lack of physical activity. Community Health Engagement Survey Solutions (CHESS (TM)) is an innovative strategy to shift decision-making around prevention and health interventions to local communities, while also reducing inequalities in the broader determinants of health. Emerging from research in India, China, Mexico and the US, C3 has implemented CHESS (TM) in the UK in eight London boroughs, Halifax and Girvan. A recently completed project in England and Scotland engaged 5000 people (approximately one-third of the local populations). CHESS (TM) facilitates communities to act as 'citizen scientists' in data-driven investigations about health and the built environment. Through a mobile tool, communities collect and interpret quantitative and qualitative data on local assets and barriers conducive to good health (or not). These results inform evidence-based action plans, guided by public health expertise, for interventions that make it easier for all to be healthy. The community enacts the changes they can make themselves and presents recommendations to decision-makers in a compelling argument for change. Thanks to CHESS (TM) evidence, communities have received over 2 pound million to implement health interventions in their neighbourhoods. The Healthy Communities project, completed in September 2017, led to physical activity and healthy eating initiatives, including cooking lessons, gardening, breakfast and tea clubs, and healthy lunches for schoolchildren. Learnings from the project have informed recommendations for those wanting to improve community health, particularly in relation to diet.
Record 30

**Title:** Neighborhood Food Environment and Dementia Incidence: the Japan Gerontological Evaluation Study Cohort Survey

**Author(s):** Tani, Y (Tani, Yukako)[1,2]; Suzuki, N (Suzuki, Norimichi)[3]; Fujiwara, T (Fujiwara, Takeo)[1]; Hanazato, M (Hanazato, Masamichi)[3]; Kondo, K (Kondo, Katsunori)[3,4]

**Source:** AMERICAN JOURNAL OF PREVENTIVE MEDICINE Volume: 56 Issue: 3 Pages: 383-392 DOI: 10.1016/j.amepre.2018.10.028 Published: MAR 2019 Document Type: Article

**Abstract:**

Introduction: Interventions targeting built environmental factors may encourage older people to engage in favorable behaviors and decrease dementia risk, but epidemiologic evidence is limited. This study investigated the association between neighborhood food environment and dementia incidence.

Methods: A 3-year follow-up (2010-2013) was conducted among participants in the Japan Gerontological Evaluation Study, a population-based cohort study of older adults aged >65 years. Dementia incidence for 49,511 participants was assessed through the public long-term care insurance system. Availability of food stores (defined as the number of food stores selling fruits and vegetables within 500 meters or 1 kilometer of residence) was assessed for each participant using objective (GIS-based) and subjective (participant-reported) measurements. Data were analyzed from 2017 to 2018. Results: A total of 3,162 cases of dementia occurred during the follow-up. Compared with the highest quartile for objective availability of food stores, the hazard ratio adjusting for age and sex was 1.60 (95% CI=1.43, 1.78) for the second-lowest quartile. Compared with the highest subjective availability of food stores, the hazard ratio was 1.74 (95% CI=1.49, 2.04) for the lowest category. After successive adjustment for sociodemographic characteristics, health status, and other geographic neighborhood factors (availability of restaurants, convenience stores, and community centers), the hazard ratio remained statistically significant. Conclusions: Lower food store availability was associated with increased dementia incidence. Given that food shopping is a routine activity and a main motive for going out among older adults, increasing the availability of food stores may contribute to dementia prevention.

Record 31

**Title:** Home and neighbourhood built environment features in family-based treatment for childhood obesity

**Author(s):** Hayes, JF (Hayes, J. F.)[1]; Balantekin, KN (Balantekin, K. N.)[2]; Conlon, RPK (Conlon, R. P. K.)[3]; Brown, ML (Brown, M. L.)[1]; Stein, RI (Stein, R. I.)[1]; Welch, RR (Welch, R. R.)[1]; Perri, MG (Perri, M. G.)[4]; Schechtman, KB (Schechtman, K. B.)[1]; Epstein, LH (Epstein, L. H.)[2]; Willfley, DE (Willfley, D. E.)[1]; Saelens, BE (Saelens, B. E.)[5,6]

**Source:** PEDIATRIC OBESITY Volume: 14 Issue: 3 Article Number: UNSP e12477 DOI: 10.1111/ijpo.12477 Published: MAR 2019 Document Type: Article

**Abstract:**

Background Family-based behavioural weight loss treatment (FBT) for childhood obesity helps families develop strategies to facilitate healthy choices in their home and other environments (e.g. home neighbourhood). The current study examines how the home food environment, both pre-FBT and post-FBT, and the neighbourhoods in which families live are associated with child weight and weight-related outcomes in FBT. Methods Parent-child dyads (n = 181) completed a 16-session FBT programme and completed home environment, anthropometric and child dietary/activity assessments at pre-FBT and post-FBT. Parents reported on availability of food, electronics and physical activity equipment in the home. The neighbourhood food and recreation environments around each dyad's residence was characterized using existing data within a geographic information system. Results Families successfully made healthy home environment modifications during FBT. Regression models showed reducing RED (e.g. high-energy-dense and low-nutrient-dense) foods and electronics in the home during FBT had positive effects on child weight and weight-related outcomes. No neighbourhood food or recreation environment variables were significantly related to outcomes, although having a larger density of public recreation spaces was associated with increases in physical activity at the trend-level. Conclusions Modifying the home
environment, specifically reducing RED foods and electronics, may be particularly important for FBT success.

Record 32

Title: School siting and mode choices for school travel: Rural-urban contrasts in Halifax, Nova Scotia, Canada

Author(s): Vitale, M (Vitale, Michele) [1]; Millward, H (Millward, Hugh) [2]; Spinney, J (Spinney, Jamie) [3]

Source: CASE STUDIES ON TRANSPORT POLICY Volume: 7 Issue: 1 Pages: 64-72 DOI: 10.1016/j.cstp.2018.11.008 Published: MAR 2019 Document Type: Article Abstract

Abstract: Mode choices for school travel are important to children's health. School size and siting impose constraints on mode choices, and these factors vary considerably along the rural-urban continuum. Using the Halifax Regional School Board, Nova Scotia, as a case study, this research examines the effects of elementary school size and siting on mode choices and school busing. Data for 96 elementary schools in the school district are examined for statistical relationships between school and catchment area size, rural-urban location, and reliance on school busing. To estimate potential walkability, a mean Walk Score (R) was calculated for a 2.4-km pedestrian zone around each school, which represents the school board's courtesy busing threshold. Mode choices from "hands-up" tallies at four schools were employed to calibrate the use of automobile and walking modes. In inner-city areas, pedestrian zones typically covered almost 90% of the school catchment area, and their walkability was moderately high. However, in suburban, commuter belt, and rural zones, much less area fell within the pedestrian zone, and walkability declined considerably. The proportion of students who walked or cycled for school travel were 40% (inner-city), 37% (suburbs), and only 5% in the commuter belt and rural zones. On the other hand, more than 80% of children who lived in the commuter belt and rural zones rode the bus, compared with 30% in the suburbs and only 6% in the inner-city areas. In both the suburban and inner-city schools, a large proportion of students were chauffeured by car. Findings suggest that post-1960 school planning for rural areas around Halifax has paid insufficient attention to the potential for children to walk or bike to school. Consequently, school consolidation and busing practices should be reconsidered in light of their negative impacts on the health and well-being of suburban and rural school children.

Record 33

Title: Residential noise exposure and the longitudinal risk of hospitalization for depression after pregnancy: Postpartum and beyond

Author(s): He, SY (He, Siyi) [1,2,3]; Smargiassi, A (Smargiassi, Audrey) [2,4]; Low, N (Low, Nancy) [5]; Bilodeau-Bertrand, M (Bilodeau-Bertrand, Marianne) [1,2]; Ayoub, A (Ayoub, Aimina) [1,2]; Auger, N (Auger, Nathalie) [1,2,3,4]


Abstract: Objective: Depression is a major public health concern, but the link with the built environment is unclear. We sought to determine the relationship between residential noise during pregnancy and later risk of severe depression in women. Methods: We analyzed a population-based cohort of 140,456 women with no documented history of mental illness who were pregnant in Montreal between 2000 and 2016. We obtained residential noise estimates (I-A(eq). (24h), L-den, L-night) from land use regression models, and followed the women over time for up to 18 years after pregnancy to identify subsequent hospitalizations for depression or other mental disorders. We used Cox regression to compute hazard ratios and 95% confidence intervals (CI) adjusted for maternal characteristics. Results: There were 8.0 incident hospitalizations for depression and 16.4 for other mental disorders per 10,000 person-years in women exposed to an LA(eq). (24) (h) of 60-64.9 dB(A). The incidence was lower for noise at < 55 dB (A), with 7.4 hospitalizations for depression and 13.8 for other mental disorders per 10,000 person-years. Compared
with 50 dB(A), an LA(eq. 24) h of 60 dB(A) was associated with 1.16 times (95% CI 0.84-1.62) the risk of depression hospitalization, and 1.34 times (95% CI 1.04-1.74) the risk of other mental disorders. Associations were more prominent for L-night, with 1.32 times (95% CI 1.08-1.63) the risk of depression hospitalization at 60 dB(A) and 1.68 times the risk (95% CI 1.05-2.67) at 70 dB(A). Conclusions: Pregnant women exposed to noise, especially nighttime noise, have a greater risk of hospitalization for depression and other mental disorders later in life. Residential noise may be a risk factor for depression after pregnancy.

**Record 34**

**Title:** Perceptions of Public Health 3.0: Concordance Between Public Health Agency Leaders and Employees

**Author(s):** Balio, CP (Balio, Casey P.)[1]; Yeager, VA (Yeager, Valerie A.)[1]; Beitsch, LM (Beitsch, Leslie M.)[2]

**Source:** JOURNAL OF PUBLIC HEALTH MANAGEMENT AND PRACTICE Volume: 25 Pages: S103-S112 Supplement: 2 Special Issue: SI DOI: 10.1097/PHH.0000000000000903 Published: MAR-APR 2019 Document Type:Article

**Abstract:** Context and Background: The newest era of public health, deemed "Public Health 3.0," supports cross-sector collaborations to address social determinants of health. These activities often require collaborations with nontraditional public health entities. As this new era begins, it is important to understand perceptions of the public health workforce with regard to Public Health 3.0. Objective: To assess perceptions of support toward Public Health 3.0 activities by the public health workforce, identify characteristics associated with support, and measure concordance in support between agency directors and the general workforce. Design: This cross-sectional study utilizes the 2017 Public Health Workforce Interests and Needs Survey to understand support and concordance regarding Public Health 3.0 activities by a nationally representative sample of governmental public health employees. Logistic regression models are used to identify characteristics associated with support of each 3.0 activity and concordance. Main Outcome Measures: Governmental public health employees' opinions on how involved their agency should be in the K-12 education system, the economy, the built environment, transportation, housing, social connectedness, and health equity within their jurisdiction and concordance in support of involvement between agency directors and the general workforce. Results: Overall, individual perceptions supporting involvement were highest for health equity and social connectedness, and health equity within their jurisdiction and concordance in support of involvement between agency directors and the general workforce. Results: Overall, individual perceptions supporting involvement were highest for health equity and social connectedness, and lowest for transportation. Supervisory status, education, and being at a local health department were associated with greater odds of supporting all 3.0 activities. Concordance with agency directors was greatest among other executives relative to nonsupervisors. Conclusions: There is overall generally high support of many 3.0 activities, but there are gaps in agreement by supervisory status, gender, race/ethnicity, education, role type, and jurisdiction. Findings may help support agency leaders in better communicating the role of their agencies in Public Health 3.0 activities, and workforce education regarding such activities may be necessary for the success of Public Health 3.0's success.

**Record 35**

**Title:** Employee Perceptions About Public Health Agencies' Desired Involvement in Impacting Health Equity and Other Social Determinants of Health

**Author(s):** Shah, GH (Shah, Gulzar H.)[1,2]; Yin, JJ (Yin, Jingjing)[2]; Young, JL (Young, Jessica L.)[3]; Waterfield, K (Waterfield, Kristie)[2]

**Source:** JOURNAL OF PUBLIC HEALTH MANAGEMENT AND PRACTICE Volume: 25 Pages: S124-S133 Supplement: 2 Special Issue: SI DOI: 10.1097/PHH.0000000000000908 Published: MAR-APR 2019 Document Type:Article

**Abstract:** Context: Despite a growing consensus in public health to address health inequities and leverage social determinants of health (SDoH), the level of public health practitioners' readiness to become the
agents of change in promoting health equity and shaping SDoH is not well researched. Objectives: To examine (1) the level of public health agency employees’ perceived desirability for impacting health equity and SDoH, and (2) the impact of employee characteristics such as a (PH WINS) public health degree and awareness of health in all policies on such desirability. Methods: Data from the 2017 Public Health Workforce Interests and Needs Survey were used in examining the sense of desirability among agency employees for affecting health equity and SDoH in the agency jurisdictions. Results: Fifty-seven percent of health agency employees believed that their agencies should be very involved in affecting health equity in their jurisdictions. Fairly smaller proportions of employees believed in the desirability of affecting specific SDoH were 17.8% for affecting the quality of transportation, 18.5% for affecting the economy, 22.2% for quality of housing, 22.4% for quality of the built environment, 25.4% for K-12 education system, and 34.5% for impacting the quality of social support systems. Agency employees without a public health degree had significantly lower odds (P < .05) of believing that the agency should be very involved in affecting health equity. Conclusions: With increasing efforts to reduce health inequities and leverage SDoH for improved population health, gaps exist in the public health workforce’s perceived desirability for their agencies to be involved in such efforts. These gaps exist among employees regardless of their demographic characteristics, length of tenure, or agency setting. Policy and practice initiatives aimed to improve health equity might benefit from our findings positing a need for education regarding SDoH and health equity. Our study findings imply the need for interventions for improving alignment between employee beliefs and organizational priorities for an effective transformation to Public Health 3.0. Fostering cross-sector partnerships with a focus on Health in All Policies (HiAP), SDoH, and health equity must be a high priority for public health agencies, which can be formalized through organizational strategic plans.

Record 36

Title: Associations between the built environment and body mass index in the Mexican American Mano A Mano Cohort

Author(s): Zhang, XY (Zhang, Xueying)[1] ; Zhao, H (Zhao, Hua)[2] ; Chow, WH (Chow, Wong-Ho)[2] ; Durand, C (Durand, Casey)[3] ; Markham, C (Markham, Christine)[3] ; Zhang, K (Zhang, Kai)[1,4]


Abstract: Background: Obesity is highly prevalent in Mexican American adults. Studies on the role of the built environment in relation to obesity among this population are scarce. Objectives: To investigate cross-sectional associations between multiple components of the built environment, and Body Mass Index (BMI) as well as obesity status among Mexican American adults enrolled in the Mano a Mano Cohort (MAC) study in Houston, Texas. Methods: We calculated BMI from measured height and weight among 9534 Mexican American adults (aged 20-60) who participated in the baseline survey during 2008-2013. Several metrics of exposure to the built environment (physical activity environment, land use, and food environment) were generated using Geographic Information System and Google Maps based on participants’ residential address. Generalized linear regression and logistic regression models were used to estimate associations between exposure to the built environment, a continuous BMI variable and categorical BMI variables (<30, >= 30 and >= 35), respectively. Results: Among all built environment exposure variables investigated, road density (total road length per km2) [0.21 (0.06, 0.36) as coefficient (95% CI)], intersection density (intersection links per km2) [0.74 (0.21, 1.28)], networked distance (km) [-0.29 (-0.47, -0.10)], and walking time (mins) [-0.02 (-0.04, -0.01)] to the nearest parks had statistically significantly linear associations with BMI. Those variables were found to have statistically significant associations with BMI >= 35 in logistic regression models, the odds ratio was 1.08 (1.02, 1.14) for road density, 1.31 (1.07, 1.60) for intersection density, 0.91 (0.85, 0.98) for networked distance, and 0.99 (0.99, 1.00) for walking time. None of the built environment exposure variables were found to be associated with BMI >= 30. Conclusions: Living in areas with high density of roads exhibited significant associations with increased BMI, in particular BMI >= 35, among enrolled Mexican American adults in the MAC study.

Record 37
Title: Mapping synergies and trade-offs between urban ecosystems and the sustainable development goals

Author(s): Maes, MJA (Maes, Mikael J. A.) [1,2,4] ; Jones, KE (Jones, Kate E.) [2,3] ; Toledano, MB (Toledano, Mireille B.) [4] ; Milligan, B (Milligan, Ben) [5]


Abstract: Global urbanisation has increased pressures on ecosystems located within city boundaries, resulting in loss and fragmentation of urban ecosystems. In September 2015, the United Nations adopted the 2030 Agenda for Sustainable Development which includes 17 Sustainable Development Goals (SDGs) and 169 SDG targets. It made environmental sustainability a key component of the agenda, whose preamble recognises that social and economic development depends on the sustainable management of Earth's natural resources. Understanding the interlinkages between the broad and globally focused 2030 Agenda and components of the natural environment remain a practical challenge for both researchers and decision-makers in all disciplines. It is unclear how SDG targets relate to urban ecosystems and what evidence base supports these relationships. Here, we address what changes are required concerning urban ecosystem management and how management of urban ecosystems can reinforce or undermine action to deliver all 169 targets in the 2030 Agenda. We characterised 91 targets requiring action in relation to urban ecosystems. These collectively emphasise the need to sustainably manage nature, provide equal rights to basic services, pursue sustainable economic growth, and strengthen governance and policy development at multiple scales. We identified 102 targets (99 synergies and 51 trade-offs) with published evidence of relationships with urban ecosystems, where decisions about urban ecosystems affect humanities ability to realise greater welfare and well-being, and build physical and social infrastructure. These findings highlight that sustainable management of urban ecosystems cannot be achieved without addressing other issues such as economic growth, equality or good governance. Translating these interlinkages into a strategy supported by all actors in society is important for achieving sustainable urban ecosystem management.

Record 38

Title: Associations of local-area walkability with disparities in residents’ walking and car use

Author(s): Sugiyama, T (Sugiyama, Takemi) [1,2,5] ; Cole, R (Cole, Rachel) [3] ; Koohsari, MJ (Koohsari, Mohammad Javad) [4,5] ; Kynn, M (Kynn, Mary) [3] ; Sallis, JF (Sallis, James F.) [1,6] ; Owen, N (Owen, Neville) [2,5]

Source: PREVENTIVE MEDICINE Volume: 120 Pages: 126-130 DOI: 10.1016/j.ypmed.2019.01.017 Published: MAR 2019 Document Type: Article

Abstract: Research has examined spatial distribution of physical activity, mostly focusing on between-area differences by examining associations of area-level walkability measures with physical activity. Within-area distribution is also relevant, since larger disparities in physical activity within an area can contribute to greater inequalities in health. However, associations of within-area disparity in walking and walkability have been examined only at a large geographical scale (city level). This cross-sectional study examined associations of local-area walkability measures with within-area disparities in residents’ walking and car use, using data collected in the 2009 South-East Queensland Travel Survey in Australia. For each Statistical Area 2 (SA2), we calculated disparity indices of the duration of walking and car use among participants aged 18-84 years, using Gini coefficients. Linear regression examined associations of the disparity measures with population density, street connectivity, and Walk Score. Analyses were conducted for 196 SA2s, which contained 15,895 participants. Higher walkability was associated with lower levels of disparity in walking and higher levels of disparity in car use, regardless of the measures used. Each one-SD increment in Walk Score was associated with a 0.64 lower SD in walking disparity and a 0.50 higher SD in car-use disparity, after adjusting for covariates. The associations remained significant after further adjusting for car ownership. Higher walkability is known to be associated with more walking and less car use. This study extends previous knowledge by showing that higher local-area walkability can be associated with less inequality in residents’ walking and higher diversity in their car use.
Record 39

**Title:** Carrots versus Sticks: Assessing Intervention Effectiveness and Implementation Challenges for Active Transport

**Author(s):** Piatkowski, DP (Piatkowski, Daniel P.) [1] ; Marshall, WE (Marshall, Wesley E.) [2] ; Krizek, KJ (Krizek, Kevin J.) [3]

**Source:** JOURNAL OF PLANNING EDUCATION AND RESEARCH Volume: 39 Issue: 1 Pages: 50-64 DOI: 10.1177/0739456X17715306 Published: MAR 2019 Document Type: Article

**Abstract:** Strategies to manage transportation demand are colloquially labeled carrots or sticks: carrots (or enablers) to entice desired travel behaviors and sticks (or deterrents) that discourage undesirable ones. Assessing the merits of each approach requires answering two questions: which approach is most effective at influencing travel behavior; and what is the difference in terms of ease of implementation between carrots and sticks? The literature typically examines these questions in isolation, but success depends upon both intervention efficacy and the ability to implement. Using a multiple-methods approach, we find those interventions that incorporate both enablers and deterrents are most effective at encouraging active transportation while remaining feasible to implement.

Record 40

**Title:** Foot-based audit of streets adjacent to new light rail stations in Houston, Texas: measurement of health-related characteristics of the built environment for physical activity research

**Author(s):** Oluyomi, AO (Oluyomi, Abiodun O.) [1, 3] ; Knell, G (Knell, Gregory) [2, 3] ; Durand, CP (Durand, Casey P.) [2, 3] ; Mercader, C (Mercader, Clara) [2] ; Salvo, D (Salvo, Deborah) [3, 4, 5] ; Sener, IN (Sener, Ipek N.) [6] ; Gabriel, KP (Gabriel, Kelley Pettee) [3, 4, 7] ; Hoelscher, DM (Hoelscher, Deanna M.) [2, 8] ; Kohl, HW (Kohl, Harold W.) [3, 4, 9]

**Source:** BMC PUBLIC HEALTH Volume: 19 Article Number: 238 DOI: 10.1186/s12889-019-6560-4 Published: FEB 28 2019 Document Type: Article

**Abstract:** Background: Active travel to and from a transit station may provide significant amounts of physical activity and improve health. The ease with which people can traverse the distance to the transit station may impede or support active travel. Therefore, transit stations that have features that are supportive of utilitarian physical activity would be desirable. This study aimed to characterize the built environment surrounding new light rail transit (LRT) stations in the City of Houston, Texas. Methods: In 2014, we used a series of systematic protocols and a standardized environmental audit instrument, the Analytic Audit Tool, to collect data on segments (streets) that surround 22 LRT stations that were being newly built. Using Geographic Information System (GIS), we assembled all the segments that intersect a 0.25-mile circular buffer around each station for the audit exercise. Several 3- to 4-member teams of trained auditors completed the audit exercise on a subset of these identified segments. Our analysis were descriptive in nature. We provided the frequency distributions of audited features across the study area. We also followed an original algorithm to produce several composite index scores for our study area. The composite index score is indicative of the prevalence of physical activity friendly/unfriendly features in the study area. Results: In all, we audited a total of 590 segments covering a total of 218 US Census blocks, and eight City of Houston super neighborhoods. Findings suggest the environment around the new LRT stations may not be supportive of physical activity. In general, the audited segments lacked land use integration; had abandoned buildings, had uneven sidewalks; were not bike-friendly, had minimal presence of public-recreational facilities that would support physical activity; and had significant physical disorder. Notably, certain attractive and comfort features were frequently to usually available. Conclusions: Current findings, which will be compared to follow-up audit data, can be useful for future researchers and practitioners interested in the built environment around LRT stations.

Record 41
**Title:** Location, location, relocation: how the relocation of offices from suburbs to the inner city impacts commuting on foot and by bike

**Author(s):** Pritchard, R (Pritchard, Ray) [1]; Froyen, Y (Froyen, Yngve) [1]

**Source:** EUROPEAN TRANSPORT RESEARCH REVIEW Volume: 11 Issue: 1 Article Number: 14 DOI: 10.1186/s12544-019-0348-6 Published: FEB 21 2019 Document Type: Article

**Abstract:** Purpose In recent decades there has been increasing focus on the development of compact and accessible urban environments, in part based on the reasoning that this can help to reduce the transportation requirements of city residents. Travel intensive land uses such as office workplaces are often offered incentives from policy makers to relocate to central locations well served by public transport (transit oriented development). To date, the academic literature on integrated transport and land use planning has largely been focused on the reduction of private car usage and promotion of public transport. This paper adds a complementary dimension, testing the hypothesis that intra-city workplace relocation towards city centres promotes walking and bicycling.

**Methods** This paper uses a comparative case study method. Employee travel surveys were conducted before and after the 2015 relocation of an office workplace in Trondheim, Norway from urban periphery to city centre. Three similar office relocation cases in Trondheim and Oslo (post-2000) are used for comparison to the case study. Changes in travel distance, time, costs, optimal route and potential for walking and bicycling in the case study are considered alongside actual changes in transport mode.

**Results** Walking and bicycling levels have a clear inverse relationship with distance to the city centre, due in large part to reduced commuting distances and increased parking costs following relocation. For the case study, the modal share of walking and cycling increased by a factor of 2.5 and 2.8 respectively. Relocation similarly led to a tripling in the number of case study employees who have a commute distance of less than 6km, the employees’ median acceptable cycling distance.

**Conclusion** Although the function of workplaces and their employees can vary significantly within a city neighbourhood, travel behaviour is to a large extent determined by supply variables like time and cost. Central workplace locations with good public transport accessibility are shown to create significantly improved opportunities for walking, cycling and public transport commuting compared to peripheral workplaces with little competition to workplace accessibility by car.

**Record 42**

**Title:** Do Experiences With Nature Promote Learning? Converging Evidence of a Cause-and-Effect Relationship

**Author(s):** Kuo, M (Kuo, Ming) [1]; Barnes, M (Barnes, Michael) [2]; Jordan, C (Jordan, Catherine) [3,4]

**Source:** FRONTIERS IN PSYCHOLOGY Volume: 10 Article Number: 305 DOI: 10.3389/fpsyg.2019.00305 Published: FEB 19 2019 Document Type: Review

**Abstract:** Do experiences with nature - from wilderness backpacking to plants in a preschool, to a wetland lesson on frogs-promote learning? Until recently, claims stripped evidence on this question. But the field has matured, not only substantiating previously unwarranted claims but deepening our understanding of the cause-and-effect relationship between nature and learning. Hundreds of studies now bear on this question, and converging evidence strongly suggests that experiences of nature boost academic learning, personal development, and environmental stewardship. This brief integrative review summarizes recent advances and the current state of our understanding. The research on personal development and environmental stewardship is compelling although not quantitative. Report after report - from independent observers as well as participants themselves - indicate shifts in perseverance, problem solving, critical thinking, leadership, teamwork, and resilience. Similarly, over fifty studies point to nature playing a key role in the development of pro-environmental behavior, particularly by fostering an emotional connection to nature. In academic contexts, nature-based instruction outperforms traditional instruction. The evidence here is particularly strong, including experimental evidence; evidence across a wide range of samples and instructional approaches; outcomes such as standardized test scores and graduation rates; and evidence...
for specific explanatory mechanisms and active ingredients. Nature may promote learning by improving learners’ attention, levels of stress, self-discipline, interest and enjoyment in learning, and physical activity and fitness. Nature also appears to provide a calmer, quieter, safer context for learning; a warmer, more cooperative context for learning; and a combination of "loose parts" and autonomy that fosters developmentally beneficial forms of play. It is time to take nature seriously as a resource for learning - particularly for students not effectively reached by traditional instruction.

Record 43

**Title:** Association Between the Activity Space Exposure to Parks in Childhood and Adolescence and Cognitive Aging in Later Life

**Author(s):** Cherrie, MPC (Cherrie, Mark P. C.)[ 1 ] ; Shortt, NK (Shortt, Niamh K.)[ 1 ] ; Thompson, CW (Thompson, Catharine Ward)[ 2 ] ; Deary, IJ (Deary, Ian J.)[ 3 ] ; Pearce, JR (Pearce, Jamie R.)[ 1 ]

**Source:** INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH

**Volume:** 16 **Issue:** 4 **Article Number:** 632 **DOI:** 10.3390/ijerph16040632 Published: FEB 2 2019

**Document Type:**Article

**Abstract:** The exposure to green space in early life may support better cognitive aging in later life. However, this exposure is usually measured using the residential location alone. This disregards the exposure to green spaces in places frequented during daily activities (i.e., the activity space'). Overlooking the multiple locations visited by an individual over the course of a day is likely to result in poor estimation of the environmental exposure and therefore exacerbates the contextual uncertainty. A child's activity space is influenced by factors including age, sex, and the parental perception of the neighborhood. This paper develops indices of park availability based on individuals’ activity spaces (home, school, and the optimal route to school). These measures are used to examine whether park availability in childhood is related to cognitive change much later in life. Multi-level linear models, including random effects for schools, were used to test the association between park availability during childhood and adolescence and cognitive aging (age 70 to 76) in the Lothian Birth Cohort 1936 participants (N = 281). To test for the effect modification, these models were stratified by sex and road traffic accident (RTA) density. Park availability during adolescence was associated with better cognitive aging at a concurrently low RTA density ( = 0.98, 95% CI: 0.36 to 1.60), but not when the RTA density was higher ( = 0.22, 95% CI: -0.07 to 0.51). Green space exposure during early life may be important for optimal cognitive aging; this should be evidenced using activity space-based measures within a life-course perspective.

Record 44

**Title:** Associations between Green Building Design Strategies and Community Health Resilience to Extreme Heat Events: A Systematic Review of the Evidence

**Author(s):** Houghton, A (Houghton, Adele)[ 1 ] ; Castillo-Salgado, C (Castillo-Salgado, Carlos)[ 2 ]

**Source:** INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH

**Volume:** 16 **Issue:** 4 **Article Number:** 663 **DOI:** 10.3390/ijerph16040663 Published: FEB 2 2019

**Document Type:**Review

**Abstract:** This project examined evidence linking green building design strategies with the potential to enhance community resilience to extreme heat events. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method for a systematic review, it assessed the strength of the evidence supporting the potential for Leadership in Energy and Environmental Design (LEED (R)) credit requirements to reduce the adverse effects of extreme heat events and/or enhance a building's passive survivability (i.e., the ability to continue to function during utility outages) during those events. The PRISMA Flow Diagram resulted in the selection of 12 LEED for New Construction (LEED NC) credits for inclusion in the review. Following a preliminary scan of evidence supporting public health co-benefits of the LEED for Neighborhood Development rating system, queries were submitted in PubMed using National Library of Medicine Medical Subject Headings Terms. Queries identified links between
LEED credit requirements and risk of exposure to extreme heat, environmental determinants of health, co-benefits to public health outcomes, and co-benefits to built environment outcomes. Public health co-benefits included reducing the risk of vulnerability to heat stress and reducing heat-related morbidity and mortality. The results lay the groundwork for collaboration across the public health, civil society, climate change, and green building sectors.

Record 45

Title: Walk Score(R) and Its Associations with Older Adults' Health Behaviors and Outcomes

Author(s): Liao, Y (Liao, Yung)[1] ; Lin, CY (Lin, Chien-Yu)[2] ; Lai, TF (Lai, Ting-Fu)[1] ; Chen, YJ (Chen, Yen-Ju)[3] ; Kim, B (Kim, Bohyeon)[4] ; Park, JH (Park, Jong-Hwan)[4]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 4 Article Number: 622 DOI: 10.3390/ijerph16040622 Published: FEB 2 2019 Document Type:Article

Abstract: This study aimed to investigate the associations between Walk Score(R) and lifestyle behaviors and health outcomes in older Taiwanese adults. A nationwide survey was conducted through telephone-based interviews with older adults (65 years and older) in Taiwan. Data on Walk Score(R), lifestyle behaviors (physical activity, sedentary behavior, healthy eating behavior, alcohol use, and smoking status), health outcomes (overweight/obesity, hypertension, type 2 diabetes, and cardiovascular disease), and personal characteristics were obtained from 1052 respondents. A binary logistic regression adjusting for potential confounders was employed. None of the Walk Score(R) categories were related to the recommended levels of total physical activity. The categories very walkable and walker's paradise were positively related to total sedentary time and TV viewing among older adults. No significant associations were found between Walk Score(R) and other lifestyle health behaviors or health outcomes. While Walk Score(R) was not associated with recommended levels of physical activity, it was positively related to prolonged sedentary time in the context of a non-Western country. The different associations between the walk score and health lifestyle behaviors and health outcomes in different contexts should be noted.

Record 46

Title: The Moderating Role of Self-Control and Financial Strain in the Relation between Exposure to the Food Environment and Obesity: The GLOBE Study

Author(s): Mackenbach, JD (Mackenbach, Joreintje D.)[1] ; Beenackers, MA (Beenackers, Marielle A.)[2] ; Noordzij, JM (Noordzij, J. Mark)[2] ; Groeniger, JO (Groeniger, Joost Oude)[2,3] ; Lakerveld, J (Lakerveld, Jeroen)[1,4,5] ; van Lenthe, FJ (van Lenthe, Frank J.)[2,5]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 4 Article Number: 674 DOI: 10.3390/ijerph16040674 Published: FEB 2 2019 Document Type:Article

Abstract: Low self-control and financial strain may limit individuals' capacity to resist temptations in the local food environment. We investigated the moderating role of self-control and financial strain in the relation between the food environment and higher body weight. We used data from 2812 Dutch adults who participated in the population-based GLOBE study in 2014. Participants' home addresses and the location of food retailers in 2013 were mapped using GIS. The density of fast food retailers and the totality of food retailers in Euclidean buffers of 250, 400 and 800 m around the home were linked to body mass index and overweight status. A higher density of fast food outlets (B (95% confidence interval (CI)) = -0.04 (-0.07; -0.01)) and the totality of food outlets (B (95% CI) = -0.01 (-0.01; -0.00)) were associated with a lower body mass index. Stratification showed that associations were strongest for those experiencing low self-control or great financial strain. For example, every additional fast food outlet was associated with a 0.17 point lower BMI in those with great financial strain, while not significantly associated with BMI in those with no financial strain. In conclusion, we did find support for a moderating role of self-control and financial strain, but associations between the food environment and weight status were not in the expected direction.
Record 47

**Title:** Area-Level Walkability and the Geographic Distribution of High Body Mass in Sydney, Australia: A Spatial Analysis Using the 45 and Up Study

**Author(s):** Mayne, DJ (Mayne, Darren J.); Morgan, GG (Morgan, Geoffrey G.); Jalaludin, B (Jalaludin, Bin B.); Bauman, AE (Bauman, Adrian E.)

**Source:** INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 4 Article Number: 664 DOI: 10.3390/ijerph16040664 Published: FEB 2 2019

**Abstract:** Improving the walkability of built environments to promote healthy lifestyles and reduce high body mass is increasingly considered in regional development plans. Walkability indexes have the potential to inform, benchmark and monitor these plans if they are associated with variation in body mass outcomes at spatial scales used for health and urban planning. We assessed relationships between area-level walkability and prevalence and geographic variation in overweight and obesity using an Australian population-based cohort comprising 92,157 Sydney respondents to the 45 and Up Study baseline survey between January 2006 and April 2009. Individual-level data on overweight and obesity were aggregated to 2006 Australian postal areas and analysed as a function of area-level Sydney Walkability Index quartiles using conditional auto regression spatial models adjusted for demographic, social, economic, health and socioeconomic factors. Both overweight and obesity were highly clustered with higher-than-expected prevalence concentrated in the urban sprawl region of western Sydney, and lower-than-expected prevalence in central and eastern Sydney. In fully adjusted spatial models, prevalence of overweight and obesity was 6% and 11% lower in medium-high versus low, and 10% and 15% lower in high versus low walkability postcodes, respectively. Postal area walkability explained approximately 20% and 9% of the excess spatial variation in overweight and obesity that remained after accounting for other individual- and area-level factors. These findings provide support for the potential of area-level walkability indexes to inform, benchmark and monitor regional plans aimed at targeted approaches to reducing population-levels of high body mass through environmental interventions. Future research should consider potential confounding due to neighbourhood self-selection on area-level walkability relations.

Record 48

**Title:** Not Parking Lots but Parks: A Joint Association of Parks and Transit Stations with Travel Behavior

**Author(s):** Park, K (Park, Keunhyun); Choi, DA (Choi, Dong-Ah); Tian, G (Tian, Guang); Ewing, R (Ewing, Reid)

**Source:** INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 4 Article Number: 547 DOI: 10.3390/ijerph16040547 Published: FEB 2 2019

**Abstract:** Urban design literature says that public open space in a station area could promote walking and other types of physical activity, enhance place attractiveness, and increase property values. In the context of station areas, however, there is a lack of empirical studies on the relationship between the presence of parks and sustainable travel behavior, which is one of the primary goals of transit-oriented developments (TODs). This study examined the impact of park provision on transit users' mode choice in three U.S. regions: Atlanta (GA), Boston (MA), and Portland (OR). This study utilized multilevel multinomial logistic regression to account for hierarchical data structurestrips nested within station areasand multiple travel modesautomobiles, transit, and walking. After controlling for the built environment and trip attributes, this study showed that when there was a park, people were more likely to walk or take transit to access or egress a transit station. A transit station having a park nearby may provide a more pleasant first-mile/last-mile travel experience. This paper demonstrated that station areas need to incorporate more public space, an overlooked element in current TOD plans.
Title: Examining the Walking Accessibility, Willingness, and Travel Conditions of Residents in Saudi Cities

Author(s): Rahman, MT (Rahman, Muhammad Tauhidur)[1]; Nahiduzzaman, KM (Nahiduzzaman, Kh. Md.)[2]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 4 Article Number: 54 DOI: 10.3390/ijerph16040545 Published: FEB 2 2019 Document Type:Article

Abstract: Rapid urban expansion and population growth in Saudi cities over the past four decades have increased vehicular accidents and traffic congestion and have impacted the daily walking conditions of the residents. Walking has various health and environmental benefits. In North American and European countries, three factors have been found to motivate a resident to walk within their community: their accessibility to community social and business facilities, their perception and willingness, and the safety conditions of the roads and sidewalks within their community for walking. This study examined these factors and their role in the walking habits of the residents in the neighborhoods of Doha and Dana districts in Saudi Arabia's eastern city of Dhahran. Data were collected through field observations and by randomly sampling and interviewing 200 residents. Geographic Information Systems (GIS) and SPSS statistical software were used for data analysis. The results show that most of the community facilities are randomly placed in the districts. Mosques are the closest facility to each resident with an average accessibility distance of 242m. Almost 43% of the respondents prefer daily walking while the rest are hesitant due to hot weather during summer and narrow and poorly designed sidewalks. The sidewalks were also found to be blocked by trees, street signals, and illegally parked vehicles. Future studies should explore the accessibility to facilities, willingness, climate, and health conditions of the residents, and the road and sidewalk conditions for walking in other cities of the Kingdom.

Title: Associations between Urban Green Spaces and Health are Dependent on the Analytical Scale and How Urban Green Spaces are Measured

Author(s): Zhang, LQ (Zhang, Liqing)[1]; Tan, PY (Tan, Puay Yok)[1]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 4 Article Number: 578 DOI: 10.3390/ijerph16040578 Published: FEB 2 2019 Document Type:Article

Abstract: Although the benefits from exposure to urban green spaces (UGS) are increasingly reported, there are important knowledge gaps in the nature of UGS-health relationships. One such unknown area is the dependence of UGS-health associations on the types of UGS studied, the way they are quantified, and the spatial scale used in the analysis. These knowledge gaps have important ramifications on our ability to develop generalizations to promote implementation and facilitate comparative studies across different socio-cultural and socio-economic contexts. We conducted a study in Singapore to examine the dependence of UGS-health associations on the metrics for quantifying UGS (vegetation cover, canopy cover and park area) in different types of buffer area (circular, nested and network) at different spatial scales. A population-based household survey (n = 1000) was used to collect information on self-reported health and perception and usage pattern of UGS. The results showed that although all three UGS metrics were positively related to mental health at certain scales, overall, canopy cover showed the strongest associations with mental health at most scales. There also appears to be minimum and maximum threshold levels of spatial scale at which UGS and health have significant associations, with the strongest associations consistently shown between 400 m to 1600 m in different buffer types. We discuss the significance of these results for UGS-health studies and applications in UGS planning for improved health of urban dwellers.
Title: Spatial patterning, correlates, and inequality in suicide across 432 neighborhoods in Taipei City, Taiwan

Author(s): Lin, CY (Lin-Yu) [1]; Hsu, CY (Hsu-Chia-Yueh) [2]; Gunnell, D (Gunnell-David) [3,4,5]; Chen, YY (Chen-Ying) [6,7,8]; Chang, SS (Chang-Shu-Sen) [1]


Abstract: More than half of the world's population now lives in urban areas. Understanding the spatial distribution of suicide in these settings may inform prevention. Previous analyses of the spatial distribution of suicide in cities have largely been conducted in Western nations. We investigated the spatial pattern of suicide and factors associated with its spatial distribution in Taipei City, Taiwan. We estimated smoothed standardized mortality ratios for overall suicide and suicide by sex/age group across 432 neighborhoods (mean population size: 5500) in Taipei City (2004-2010) using Bayesian hierarchical models. A range of area-level characteristics including socioeconomic deprivation, social fragmentation, income inequality, and linking social capital were investigated for their associations with suicide mortality. Overall suicide rates were below average in the city center, whereas above average rates were found in some suburbs. The cartogram highlighted the concentration of suicide burden in one western area of the city. Male suicides demonstrated generally similar spatial patterning across age groups, while the geographic distribution of female suicides differed by age. After adjusting for other variables, two area characteristics were found to be associated with area suicide rates: the proportion of divorced/separated adults (rate ratio [RR] per one standard deviation increase = 1.08, 95% confidence interval 1.01-1.16), an indicator of social fragmentation; and median household income (RR = 0.80, 0.73-0.86), an indicator of socioeconomic deprivation. There was a 1.8-fold difference in suicide rates between neighborhood quintiles with the lowest and the highest median household income, with middle-aged males showing the largest gradient (3.2-fold difference). The geography of suicide in Taipei City showed spatial patterning and socioeconomic correlates distinct from cities in Western nations. There is a need for future research to better understand the correlates of change in the geographic distribution of suicide throughout the process of urban development.

Record 525

Title: Outdoor Fitness Equipment Usage Behaviors in Natural Settings

Author(s): Chow, HW (Chow-Hsueh-Wen) [1]; Wu, DR (Wu-Dai-Rong) [1]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH Volume: 16 Issue: 3 Article Number: 391 DOI: 10.3390/ijerph16030391 Published: FEB 2019 Document Type: Article

Abstract: Outdoor fitness equipment (OFE) areas have become a popular form of built environment infrastructure in public open spaces as a means to improve public health through increased physical activity. However, the benefits of using OFE are not consistent, and several OFE accidents have been reported. In this study, we videotaped how OFE users operate OFE in parks and selected four types of popular OFE (the waist twister, air walker, ski machine, and waist/back massager) for video content analysis. Furthermore, we established coding schemes and compared results with the instructions provided by OFE manufacturers. The results revealed various usage behaviors for the same OFE types. In addition, we observed that a significant portion of user behaviors did not follow manufacturers' instructions, which might pose potential risks or actually cause injuries. Children are especially prone to act improperly. This study provides empirical evidence indicating the existence of potential safety risks due to inappropriate usage behaviors that might lead to accidents and injuries while using OFE. This study provides crucial information that can be used to evaluate the effectiveness of OFE and to develop future park or open space initiatives.

Record 53
Title: Obesity and Urban Environments

Author(s): Congdon, P (Congdon, Peter) [1]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 3 Article Number: 464 DOI: 10.3390/ijerph16030464 Published: FEB 1 2019 Document Type: Editorial Material

Abstract: Obesity is a major public health issue, affecting both developed and developing societies. Obesity increases the risk for heart disease, stroke, some cancers, and type II diabetes. While individual behaviours are important risk factors, impacts on obesity and overweight of the urban physical and social environment have figured large in the recent epidemiological literature, though evidence is incomplete and from a limited range of countries. Prominent among identified environmental influences are urban layout and sprawl, healthy food access, exercise access, and the neighbourhood social environment. This paper reviews the literature and highlights the special issue contributions within that literature.

Title: Spatiotemporal Prediction of Increasing Winter Perceived Temperature across a Sub-Tropical City for Sustainable Planning and Climate Change Mitigation

Author(s): Ho, HC (Ho, Hung Chak) [1,2]; Abbas, S (Abbas, Sawaid) [2]; Yang, JX (Yang, Jinxin) [3]; Zhu, R (Zhu, Rui) [4]; Wong, MS (Wong, Man Sing) [2,5]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 3 Article Number: 497 DOI: 10.3390/ijerph16030497 Published: FEB 1 2019 Document Type: Article

Abstract: Climate variability has been documented as being key to influencing human wellbeing across cities as it is linked to mortality and illness due to changes in the perceived weather cycle. Many studies have investigated the impact of summer temperature on human health and have proposed mitigation strategies for summer heat waves. However, sub-tropical cities are still experiencing winter temperature variations. Increasing winter perceived temperature through the decades may soon affect city wellbeing, due to a larger temperature change between normal winter days and extreme cold events, which may cause higher health risk due to lack of adaptation and self-preparedness. Therefore, winter perceived temperature should also be considered and integrated in urban sustainable planning. This study has integrated the increasing winter perceived temperature as a factor for developing spatiotemporal protocols for mitigating the adverse impact of climate change. Land surface temperature (LST) derived from satellite images and building data extracted from aerial photographs were used to simulate the adjusted wind chill equivalent temperature (AWCET) particularly for sub-tropical scenarios between 1990 and 2010 of the Kowloon Peninsula, Hong Kong. Compared with perceived temperature based on the representative station located at the headquarters of the Hong Kong Observatory, the temperature of half the study area in the Kowloon Peninsula has raised by 1.5 degrees C. The areas with less green space and less public open space in 2010 show higher relative temperatures. Socioeconomically deprived areas (e.g., areas with lower median monthly income) may suffer more from this scenario, but not all types of socioeconomic disparities are associated with poor sustainable planning. Based on our results and the no-one left behind guideline from the United Nations, climate change mitigation should be conducted by targeting socioeconomic neighborhoods more than just aging communities.

Title: Active and Passive Use of Green Space, Health, and Well-Being amongst University Students

Author(s): Holt, EW (Holt, Elizabeth W.) [1]; Lombard, QK (Lombard, Quinn K.) [1]; Best, N (Best, Noelle) [1]; Smiley-Smith, S (Smiley-Smith, Sara) [2]; Quinn, JE (Quinn, John E.) [3]
Abstract: Frequent exposure to green space has been linked to positive health and well-being in varying populations. Yet, there is still limited research exploring the restorative benefits associated with differing types of green space use among students living in the university setting. To address this gap, we explored green space use amongst a population of undergraduate students (n = 207) attending a university with abundant opportunities to access the restorative properties of nature. The purpose of this study was to examine the type and frequency of green space interactions that are most strongly associated with indicators of health and well-being, and investigate student characteristics associated with frequent use of green space. Results revealed that students who frequently engage with green spaces in active ways report higher quality of life, better overall mood, and lower perceived stress. Passive green space interactions were not strongly associated with indicators of health and well-being. Having had daily interactions with green space in childhood was associated with frequent green space use as a university student, and identified barriers to green space use included not enough time, and not aware of opportunities. These results could assist in the tailoring of green exercise interventions conducted in the university setting.

Record 56

Title: The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion

Author(s): Jennings, V (Jennings, Viniece)[1]; Bamkole, O (Bamkole, Omoshalewa)[2]

Abstract: Social cohesion involves the interpersonal dynamics and sense of connection among people. Increased social cohesion can be associated with various physical and psychological health benefits. The presence of urban green spaces can encourage positive social interactions that cultivate social cohesion in ways that enhance health and well-being. Urban green spaces have also been linked to positive health behaviors and outcomes including increased physical activity and social engagement. Understanding the relationship between social cohesion and urban green space is important for informing holistic approaches to health. In this article, we discuss how positive interactions in urban green space can catalyze social cohesion, social capital, and critical health-promoting behaviors that may enhance psychological health and well-being. We also summarize the strengths and limitations of previous studies and suggest directions for future research.

Record 57

Title: The Effect of Cross-Level Interaction between Community Factors and Social Capital among Individuals on Physical Activity: Considering Gender Difference

Author(s): Jun, HJ (Jun, Hee-Jung)[1]; Park, S (Park, Seoyeon)

Abstract: This study examines the effect of cross-level interaction between community physical environment and social capital among individuals on physical activity by considering gender difference. In this regard, we ask two research questions: (1) What is the effect of cross-level interaction between community factors and social capital among individuals on physical activity? (2) Is there gender difference in the effect of the cross-level interaction? To examine the research questions, this study used the 2015
Korea Community Health Survey and used multi-level analyses. The empirical analyses show that while there are both positive and negative cross-level interaction effects between physical activity-supportive community environment and social capital among individuals on physical activity, the positive cross-level interaction effect is more pronounced for women than for men. These findings suggest that local efforts to improve public health should take into account the cross-level interaction effect between community physical environment and social capital among individuals as well as gender difference.

Record 58

Title: Bicycle Facilities Safest from Crime and Crashes: Perceptions of Residents Familiar with Higher Crime/Lower Income Neighborhoods in Boston

Author(s): Lusk, AC (Lusk, Anne C.)[ 1 ]; Willett, WC (Willett, Walter C.)[ 1 ]; Morris, V (Morris, Vivien)[ 2 ]; Byner, C (Byner, Christopher)[ 3 ]; Li, YP (Li, Yanping)[ 1 ]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH

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Abstract: While studies of bicyclist’s perceptions of crime and crash safety exist, it is also important to ask lower-income predominantly-minority residents what bicycle-route surface or context they perceive as safest from crime and crashes. With their insights, their chosen bike environments could be in engineering guidelines and built in their neighborhoods to improve residents’ health and lessen their risk of exposure to crime or crashing. This study involved two populations in Boston: (a) community-sense participants (eight groups – church/YMCA n = 116); and (b) street-sense participants (five groups – halfway house/homeless shelter/gang members n = 96). Participants ranked and described what they saw in 32 photographs of six types of bicycle environments. Quantitative data (Likert Scale 0-6 with 0 being low risk of crime/crash) involved regression analysis to test differences. Qualitative comments were categorized into 55 themes for surface or context and if high or low in association with crime or crashes. For crime, two-way cycle tracks had a significantly lower score (safest) than all others (2.35; p < 0.01) and share-use paths had a significantly higher score (least safe) (3.39; p < 0.01). For crashes, participants rated shared-use paths as safest (1.17) followed by two-way cycle tracks (1.68), one-way cycle tracks (2.95), bike lanes (4.06), sharrows (4.17), and roads (4.58), with a significant difference for any two groups (p < 0.01) except between bike lane and sharrow (p = 0.9). Street-sense participants ranked all, except shared-use paths, higher for crime and crash. For surface, wide two-way cycle tracks with freshly painted lines, stencils, and arrows were low risk for crime and a cycle track’s median, red color, stencils, and arrows low risk for crash. For context, clean signs, balconies, cafes, street lights, no cuts between buildings, and flowers were low risk for crime and witnesses, little traffic, and bike signals low risk for crash. As bicycle design guidelines and general Crime Perception Through Environmental Design (CPTED) principles do not include these details, perhaps new guidelines could be written.

Record 59

Title: Recognition of Barriers to Physical Activity Promotion in Immigrant Children in Spain: A Qualitative Case Study

Author(s): Marconnot, R (Marconnot, Romain)[ 1 ]; Marin-Rojas, AL (Luis Marin-Rojas, Antonio)[ 1 ]; Delfa-de-la-Morena, JM (Manuel Delfa-de-la-Morena, Jose)[ 1 ]; Perez-Corrales, J (Perez-Corrales, Jorge)[ 1 ]; Gueita-Rodriguez, J (Gueita-Rodriguez, Javier)[ 1 ]; Fernandez-de-las-Penas, C (Fernandez-de-las-Penas, Cesar)[ 1 ]; Palacios-Cena, D (Palacios-Cena, Domingo)[ 1 ]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH

Volume: 16 Issue: 3 Article Number: 431 DOI: 10.3390/ijerph16030431 Published: FEB 1 2019 Document Type:Article

Abstract: Physical activity facilitates the acquisition of healthy habits from childhood to adulthood. Differences exist regarding the performance of physical activity among immigrant children compared to
native Spanish children. The purpose of the study was to describe the barriers that exist for the promotion of physical activity. A qualitative case-study approach was implemented. Parents of immigrant children, teachers, a school principal, and priests were included, using purposeful sampling. Data were collected from 25 participants, via unstructured and semi-structured interviews, focus groups, and researchers’ field notes. A thematic analysis was performed and ecological levels were identified. Our findings revealed the following barriers to performing physical activity: (a) the meaning of physical activity, (b) gender inequalities, (c) academic burden, (d) lack of social contact, (e) expenses and family economy, (f) lack of infrastructure and natural surroundings, (g) time constraints, (h) fear and insecurity, and (i) the reason for immigrating. These results may be used to revise the school curriculum, promoting equal opportunities for physical activity and encouraging family participation. Additionally, urban design policies should be encouraged to facilitate access to open spaces for recreation within cities.

Record 60

Title: Health Benefits of Physical Activity Related to an Urban Riverside Regeneration

Author(s): Vert, C (Vert, Cristina)[1, 2, 3]; Nieuwenhuijsen, M (Nieuwenhuijsen, Mark)[1, 2, 3]; Gascon, M (Gascon, Mireia)[1, 2, 3]; Grellier, J (Grellier, James)[4, 5]; Fleming, LE (Fleming, Lora E.)[4]; White, MP (White, Mathew P.); Rojas-Rueda, D (Rojas-Rueda, David)[1, 2, 3]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 3 Article Number: 462 DOI: 10.3390/ijerph16030462 Published: FEB 1 2019 Document Type: Article

Abstract: The promotion of physical activity through better urban design is one pathway by which health and well-being improvements can be achieved. This study aimed to quantify health and health-related economic impacts associated with physical activity in an urban riverside park regeneration project in Barcelona, Spain. We used data from Barcelona local authorities and meta-analysis assessing physical activity and health outcomes to develop and apply the Blue Active Tool. We estimated park user health impacts in terms of all-cause mortality, morbidity (ischemic heart disease; ischemic stroke; type 2 diabetes; cancers of the colon and breast; and dementia), disability-adjusted life years (DALYs) and health-related economic impacts. We estimated that 5753 adult users visited the riverside park daily and performed different types of physical activity (walking for leisure or to/from work, cycling, and running). Related to the physical activity conducted on the riverside park, we estimated an annual reduction of 7.3 deaths (95% CI: 5.4; 10.2), and 6.2 cases of diseases (95% CI: 2.0; 11.6). This corresponds to 11.9 DALYs (95% CI: 3.4; 20.5) and an annual health-economic impact of 23.4 million euros (95% CI: 17.2 million; 32.8 million). The urban regeneration intervention of this riverside park provides health and health-related economic benefits to the population using the infrastructure.

Record 61

Title: Supporting Active Living Through Community Plans: The Association of Planning Documents With Design Standards and Features

Author(s): Peterson, EL (Peterson, Erin L.); Carlson, SA (Carlson, Susan A.); Schmid, TL (Schmid, Thomas L.); Brown, DR (Brown, David R.); Galuska, DA (Galuska, Deborah A.)


Abstract: Purpose: The purpose of this study was to examine the association between the presence of supportive community planning documents in US municipalities with design standards and requirements supportive of active living. Design: Cross-sectional study using data from the 2014 National Survey of Community-Based Policy and Environmental Supports for Healthy Eating and Active Living. Setting: Nationally representative sample of US municipalities. Participants: Respondents are 2005 local officials. Measures: Assessed: (1) The presence of design standards and feature requirements and (2) the association between planning documents and design standards and feature requirements supportive of
active living in policies for development. Analysis: Using logistic regression, significant trends were identified in the presence of design standards and feature requirements by plan and number of supportive objectives present. Results: Prevalence of design standards ranged from 19% (developer dedicated right-of-way for bicycle infrastructure development) to 50% (traffic-calming features in areas with high pedestrian and bicycle volume). Features required in policies for development ranged from 14% (short/medium pedestrian-scale block sizes) to 44% (minimum sidewalk widths of 5 feet) of municipalities. As the number of objectives in municipal plans increased, there was a significant and positive trend (P < .05) in the prevalence of each design standard and requirement. Conclusions: Municipal planning documents containing objectives supportive of physical activity are associated with design standards and feature requirements supportive of activity-friendly communities.

Record 62

Title: The role of green spaces in increasing social interactions in neighborhoods with periodic markets

Author(s): Aram, F (Aram, Farshid)[ 1 ]; Solgi, E (Solgi, Ebrahim)[ 2 ]; Holden, G (Holden, Gordon)[ 2 ]


Abstract: In this research, the effects of green spaces on the extent of residents' socialization behavior as well as the actual presence of people in neighborhood open spaces where daily markets are held, were investigated. The statistical population of this research included residents in six neighborhoods in Hamadan City where daily markets are held. More specifically, social participation in three neighborhoods where the venue of daily markets enjoys green space was compared with three corresponding neighborhoods, where the venue of daily markets lacked green space. The results of the research indicated that in neighborhoods where periodic markets are held in venues with green space, the extent of visits to the market and social behavior, specifically, acquaintance of neighbors with each other, sense of belonging, and the level of cooperation, were greater than that of neighborhoods with no green space. Moreover, effective indices that influence the quality of green spaces were also obtained. These indices, in order of significance, are 1. The aesthetic allure of urban furniture; 2. Suitable vegetation; 3. Sufficiency of urban furniture and; 4. Suitable flooring.

Record 63

Title: The Hispanic Community Health Study/Study of Latinos Community and Surrounding Areas Study: sample, design, and procedures

Author(s): Gallo, LC (Gallo, Linda C.)[ 1 ]; Carlson, JA (Carlson, Jordan A.); Sotres-Alvarez, D (Sotres-Alvarez, Daniela)[ 3 ]; Sallis, JF (Sallis, James F.); Jankowska, MM (Jankowska, Marta M.); Gonzalez, F (Gonzalez, Franklyn, II)[ 3 ]; Geremia, CM (Geremia, Carrie M.); Talavera, GA (Talavera, Gregory A.); Rodriguez, TM (Rodriguez, Tasi M.); Castaneda, SF (Castaneda, Sheila F.); Allison, MA (Allison, Matthew A.)


Abstract: Purpose: We describe the sample, design, and procedures for the Community and Surrounding Areas Study (CASAS), an ancillary to the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). The aim of SOL CASAS was to test an ecological model of macro- and micro-neighborhood environment factors, intermediate behavioral (physical activity) and psychosocial (e.g., depression and stress) mechanisms, and changes in cardiometabolic health in Hispanics/Latinos. Methods: Between 2015 and 2017, approximately 6 years after the HCHS/SOL baseline (2008-2011), 1776 San Diego HCHS/SOL participants enrolled in SOL CASAS and completed a repeat physical activity assessment. Participants' residential addresses were geoprocessed, and macroenvironmental features of the home were derived from publicly available data concurrent with the HCHS/SOL baseline and Visit 2 (2014-2017). Microscale environmental attributes were coded for 943 unique routes for 1684 participants, with a validated
observational tool, concurrent with Visit 2, for SOL CASAS participants only. Results: Of 2520 HCHS/SOL participants approached, 70.5% enrolled (mean age 55.3 years; 94% Mexican; 67.5% female). Accelerometer adherence (three or more days with at least 10 hours wear time) was outstanding (94%). Conclusions: With its more comprehensive ecological model and well-characterized Hispanic/Latino population, SOL CASAS will advance the science concerning the contribution of neighborhood factors to cardiometabolic health.

Record 64

Title: Place-making and performance: The impact of walkable built environments on business performance in Phoenix and Boston

Author(s): Credit, K (Credit, Kevin)[ 1 ] ; Mack, E (Mack, Elizabeth)[ 2 ]


Abstract: This paper examines the importance of place-making in economic development by evaluating the relationship between specific urban design features - based on Jacobs' "four generators of diversity" and Ewing and Cervero's "Five-D's" - and business sales volume. Despite the increased recognition of the importance of walkable urbanism in recent years, relatively little research has assessed the potential economic development benefits of walkable places. While a few authors have assessed the impact of urban design on property values, this paper fills a gap by examining links between components of walkable built environments and individual business characteristics. This paper uses a Hierarchical Linear Modeling framework to explicitly look at the relationship between neighborhood built environment features at the Census tract level and the sales volume per employee of individual businesses in 2010. The cities of Phoenix and Boston are used as contrasting study sites in order to inspect how larger regional characteristics influence the built environment-performance link. The results indicate that specific features of walkable built environments are positively associated with business performance. However, the relationship between walkable built environments and business performance varies considerably depending on the type of business and city-level context being studied, indicating that significant nuance must be used when considering place-based economic interventions. Although no causal statements can be made about the built environment and business performance, the results of this paper indicate that (in some contexts) design-based place-making initiatives could be used to generate sustainable local economic development.

Record 65

Title: Urban Sustainability and Livability: An Analysis of Doha's Urban-form and Possible Mitigation Strategies

Author(s): Al-Thani, SK (Al-Thani, Soud K.)[ 1 ] ; Amato, A (Amato, Alexandre)[ 2 ] ; Koc, M (Koc, Muammar)[ 1 ] ; Al-Ghamdi, SG (Al-Ghamdi, Sami G.)[ 1 ]

Source: SUSTAINABILITY Volume: 11 Issue: 3 Article Number: 786 DOI: 10.3390/su11030786 Published: FEB 1 2019 Document Type:Article

Abstract: This study examines the concept of sustainability and livability at the neighborhood level in a low-density city such as Doha. In its current form, Metropolitan Doha, Qatar's capital and where 80% of the population resides, is neither sustainable nor ranked highly in many city livability indices of international cities, although Qatar aims to become a truly sustainable state as envisioned in its Qatar National Vision (QNV) 2030 and endorsed in its National Development Strategies 2012 and 2018. Doha remains a fractured city; its rapid growth has led to unrestrained, extensive urban sprawl with high dependency on private transportation mainly by large SUVs, continually instigated by the absence of public transportation. Doha is also a relatively low-density city where the main driver of its urban sprawl is the inhabitants' deep-set desire for privacy, and hence, home ownership of single-family detached villas, which have become the predominant residential building-block of neighborhoods with little to no provisions of in-neighborhood
community services and amenities such as basic shopping, health, education, and recreation. Consequently, this urban form has resulted in long and frequent commutes for individuals and families, increasing the number of vehicles in traffic almost every hour of every day, traffic congestion, high transportation-related CO2 emissions, additional expenses, and loss of quality family time, among several other environmental, social, and economic sustainability impacts. The findings of this study, which are based on a behavioral survey, illustrate the residents' views on neighborhood improvement and changes in the transportation modes, as well as their willingness to change their habits for the benefit of common and future generations.

Record 66

Title: A Methodology to Evaluate Accessibility to Bus Stops as a Contribution to Improve Sustainability in Urban Mobility

Author(s): Corazza, MV (Corazza, Maria Vittoria)[ 1 ] ; Favaretto, N (Favaretto, Nicola)[ 1 ]

Source: SUSTAINABILITY Volume: 11 Issue: 3 Article Number: 803 DOI: 10.3390/su11030803 Published: FEB 1 2019 Document Type:Article

Abstract: Walking and transit are the backbone of sustainable mobility. Bus stops not only represent the connection between the two, but are also central in dictating the attractiveness of the latter. Accessibility of bus stops becomes, then, pivotal in increasing both attractiveness and sustainability of public transport. The paper describes a multi-step methodology to evaluate bus stops' accessibility starting from a cluster of seven indicators describing objective and subjective features influencing passengers' choice toward a given bus stop. The indicators are weighed by a questionnaire submitted to experts. Finally, a multicriteria analysis is developed to obtain a final score describing univocally the accessibility of each stop. Outcomes are mapped and a case study in Rome is reported as an example, with 231 bus and tram stops assessed accordingly. Results show the relevance of the urban network and environment in evaluating the accessibility and in promoting more sustainable mobility patterns. Research innovation relies on the possibility to merge data from different fields into a specific GIS map and easily highlight for each bus stop the relationships between built environment, passengers' comfort, and accessibility, with the concluding goal to provide advanced knowledge for further applications.

Record 67

Title: Analysis of Self-Reported Walking for Transit in a Sprawling Urban Metropolitan Area in the Western US

Author(s): Coughenour, C (Coughenour, Courtney)[ 1 ] ; de la Fuente-Mella, H (de la Fuente-Mella, Hanns)[ 2 ] ; Paz, A (Paz, Alexander)[ 3 ]

Source: SUSTAINABILITY Volume: 11 Issue: 3 Article Number: 852 DOI: 10.3390/su11030852 Published: FEB 1 2019 Document Type:Article

Abstract: Walkability is associated with increased levels of physical activity and improved health and sustainability. The sprawling design of many metropolitan areas of the western U.S., such as Las Vegas, influences their walkability. The purpose of this study was to consider sprawl characteristics along with well-known correlates of walkability to determine what factors influence self-reported minutes of active transportation. Residents from four neighborhoods in the Las Vegas Metropolitan Area, targeted for their high and low walkability scores, were surveyed for their perceptions of street-connectivity, residential-density, land-use mix, and retail-floor-area ratio and sprawl characteristics including distance between crosswalks, single-entry-communities, high-speed streets, shade, and access to transit. A Poisson model provided the best estimates for minutes of active transportation and explained 11.28% of the variance. The model that included sprawl characteristics resulted in a better estimate of minutes of active transportation compared to the model without them. The results indicate that increasing walkability in urban areas such as Las Vegas requires an explicit consideration of its sprawl characteristics. Not taking such design characteristics into account may result in the underestimation of the influence of sprawl on active
transportation and may result in a missed opportunity to increase walking. Understanding the correlates of walkability at the local level is important in successfully promoting walking as a means to increase active transportation and improve community health and sustainability.

Record 68

Title: The Wellbeing Benefits Associated with Perceived and Measured Biodiversity in Australian Urban Green Spaces

Author(s): Schebella, MF (Schebella, Morgan Faith) [1]; Weber, D (Weber, Delene) [1]; Schultz, L (Schultz, Lisa) [2]; Weinstein, P (Weinstein, Philip) [3]

Source: SUSTAINABILITY Volume: 11 Issue: 3 Article Number: 802 DOI: 10.3390/su11030802 Published: FEB 1 2019 Document Type:Article

Abstract: There are few studies examining the wellbeing benefits from exposure to natural environments differing in ecological attributes, such as biodiversity, and they have not had consistent results. This study progresses our understanding of the nuanced relationship between nature and wellbeing by analyzing the self-reported benefits derived from urban green spaces varying in a range of objectively measured biodiversity attributes such as bird species richness, habitat diversity, and structural heterogeneity. Respondents' (n = 840) perceptions of biodiversity and naturalness were also examined. We identified the biodiversity attributes most strongly associated with particular benefits, as well as the types of parks where those benefits were significantly more likely to occur. Findings suggest that perceived, rather than objective measures of biodiversity are better predictors of subjective wellbeing benefits. Of the assessed biodiversity attributes, vegetation cover consistently correlated most strongly with psychological benefits. Stress reduction and mood improvement were greatest in nature parks and lowest in pocket parks. Increases in each biodiversity attribute significantly affected psychological wellbeing at different thresholds, suggesting the relationship between biodiversity and wellbeing is not linear. Thresholds of sensitivity for park attributes are discussed, with vegetation cover, naturalness, structural heterogeneity, and park type emerging as the most useful differentiators for studying human responses to nature. Our findings can help inform green space planning to maximize environmental benefits and health benefits concurrently.

Record 69

Title: Spatial Explicit Assessment of Urban Vitality Using Multi-Source Data: A Case of Shanghai, China

Author(s): Yue, WZ (Yue, Wenze) [1,2]; Chen, Y (Chen, Yang) [1]; Zhang, Q (Zhang, Qun) [1,3]; Liu, Y (Liu, Yong) [4]

Source: SUSTAINABILITY Volume: 11 Issue: 3 Article Number: 638 DOI: 10.3390/su11030638 Published: FEB 1 2019 Document Type:Article

Abstract: Identifying urban vitality in large cities is critical for optimizing the urban fabric. While great attention has been paid to urban vitality in developed countries, related studies have been rarely conducted in developing countries. In this study, we defined urban vitality as the capacity of an urban built environment to boost lively social activities and developed a framework for measuring urban vitality using the dimensions of built environment, human activities, and human-environment interaction. Taking Shanghai, China as a case, we conducted a measurement of urban vitality using multi-source data. The results show that Shanghai follows a monocentric vital pattern within the outer ring road, with urban vitality declining from the central urban core to the city periphery. While the old urban cores tend to show high urban vitality, Pudong New Area is mostly dominated by low vitality. Three clusters with high urban vitality were identified: the old urban area, the Lujiazui CBD, and residential agglomeration areas. We conducted validation of the measuring results using phone usage density. Urban vitality showed a positive correlation with phone usage density, indicating a high accuracy of assessment. We also discovered that European-style block planning, zoning plan, mixed-functional development, urban renewal regulation, and migrant concentration were playing leading role in urban vitality of Shanghai.
Record 70

Title: The Impact of the Community Built Environment on the Walking Times of Residents in a Community in the Downtown Area of Fuzhou

Author(s): Zhao, LZ (Zhao, Lizhen)[ 1,2 ]; Shen, ZJ (Shen, Zhenjiang)[ 1 ]; Zhang, YJ (Zhang, Yanji)[ 2 ]; Ma, Y (Ma, Yan)[ 2 ]

Source: SUSTAINABILITY Volume: 11 Issue: 3 Article Number: 691 DOI: 10.3390/su11030691 Published: FEB 1 2019 Document Type:Article

Abstract: By means of on-site and network investigation, we collected data relevant to residents of communities, point of interest (POI) data, and land-use data of Fuzhou. We set traffic walking time and leisure walking time as an independent variable, built environment as dependent variable, and gender, age, education level and income level as control variables. Six linear regression models were established using Statistical Product and Service Solutions (SPSS). The results showed that in the 5D (i.e., Density, Diversity, Design, Destination and Distance) elements of the built environment, the density was negatively correlated with the traffic walking time, whereas other elements were positively correlated with the walking time, but the degree of influence was different.

Record 71

Title: INTERACT: A comprehensive approach to assess urban form interventions through natural experiments

Author(s): Kestens, Y (Kestens, Yan)[ 1 ]; Winters, M (Winters, Meghan)[ 2 ]; Fuller, D (Fuller, Daniel)[ 3 ]; Bell, S (Bell, Scott)[ 4 ]; Berscheid, J (Berscheid, Janelle)[ 4 ]; Brondeel, R (Brondeel, Ruben)[ 1 ]; Cantinotti, M (Cantinotti, Michael)[ 5 ]; Datta, G (Datta, Geetanjali)[ 1 ]; Gauvin, L (Gauvin, Lise)[ 1 ]; Gough, M (Gough, Margot)[ 4 ]; Laberee, K (Laberee, Karen)[ 2 ]; Lewis, P (Lewis, Paul)[ 1 ]; Lord, S (Lord, Sebastien)[ 1 ]; Luan, H (Luan, Hui (Henry))[ 3 ]; McKay, H (McKay, Heather)[ 6 ]; Morency, C (Morency, Catherine)[ 7 ]; Muhajarine, N (Muhajarine, Nazeem)[ 4 ]; Nelson, T (Nelson, Trisalyn)[ 8 ]; Ottoni, C (Ottoni, Callista)[ 5 ]; Stephens, ZP (Stephens, Zoe Poirier)[ 1 ]; Pugh, C (Pugh, Caitlin)[ 2 ]; Rancourt, G (Rancourt, Gabrielle)[ 1 ]; Shareck, M (Shareck, Martin)[ 9 ]; Sims-Gould, J (Sims-Gould, Joanie)[ 5 ]; Sones, M (Sones, Meredith)[ 2 ]; Stanley, K (Stanley, Kevin)[ 4 ]; Thierry, B (Thierry, Benoit)[ 1 ]; Thigpen, C (Thigpen, Calvin)[ 7 ]; Wasfi, R (Wasfi, Rania)[ 1 ]

Source: BMC PUBLIC HEALTH Volume: 19 Article Number: 51 DOI: 10.1186/s12889-018-6339-z Published: JAN 10 2019 Document Type:Article

Abstract: Background Urban form interventions can result in positive and negative impacts on physical activity, social participation, and well-being, and inequities in these outcomes. Natural experiment studies can advance our understanding of causal effects and processes related to urban form interventions. The INTErventions, Research, and Action in Cities Team (INTERACT) is a pan-Canadian collaboration of interdisciplinary scientists, urban planners, and public health decision makers advancing research on the design of healthy and sustainable cities for all. Our objectives are to use natural experiment studies to deliver timely evidence about how urban form interventions influence health, and to develop methods and tools to facilitate such studies going forward. Methods INTERACT will evaluate natural experiments in four Canadian cities: the Arbutus Greenway in Vancouver, British Columbia; the All Ages and Abilities Cycling Network in Victoria, BC; a new Bus Rapid Transit system in Saskatoon, Saskatchewan; and components of the Sustainable Development Plan 2016-2020 in Montreal, Quebec, a plan that includes urban form changes initiated by the city and approximately 230 partnering organizations. We will recruit a cohort of between 300 and 3000 adult participants, age 18 or older, in each city and collect data at three time points. Participants will complete health and activity space surveys and provide sensor-based location and physical activity data. We will conduct qualitative interviews with a subsample of participants in each city. Our analysis methods will combine machine learning methods for detecting transportation mode use and physical activity, use temporal Geographic Information Systems to quantify changes to urban intervention exposure, and apply analytic methods for natural experiment studies including interrupted time series
INTERACT aims to advance the evidence base on population health intervention research and address challenges related to big data, knowledge mobilization and engagement, ethics, and causality. We will collect similar to 100TB of sensor data from participants over 5 years. We will address these challenges using interdisciplinary partnerships, training of highly qualified personnel, and modern methodologies for using sensor-based data.

Record 72
Title: Residential dissonance and walking for transport

Author(s): Kajosaari, A (Kajosaari, Anna)[1]; Hasanzadeh, K (Hasanzadeh, Kamyar)[1]; Kytta, M (Kytta, Marketta)[1]


Abstract: The concept of residential dissonance contextualizes the combined impact of built environment and individual travel and land-use preferences on travel behavior. A limited number of studies have explored the effect of residential dissonance specifically on walking. However, evidence from the active travel literature suggests that the environmental characteristics associated with diverse active travel modes differ to some extent. This study addresses residential dissonance in a framework specific for walking outcomes, as the applied neighborhood boundaries, residential preferences and the observed built environment were operationalized with measures related to walking for transport. SoftGIS, a public participatory GIS method allowing the mapping of frequently visited destinations was used to survey the daily walking behavior of 772 respondents aged 25-40 years living in the Helsinki metropolitan area, Finland. Ordinal logistic regression analyses were used to assess the adjusted odds of walking a high share of estimated monthly trips and travel distance. The identified residential dissonance groups were found to have significant associations with the walking outcomes. Associations between the observed neighborhood walkability and the walking outcomes varied by trip purpose, being more consistent with walking to utilitarian than to recreational destinations. Overall, the results support views on the interconnectedness of individual attitudes and the built environment in facilitating walking for transport.

Record 73
Title: Auditing street walkability and associated social inequalities for planning implications

Author(s): Su, SL (Su, Shiliang)[1]; Zhou, H (Zhou, Hao)[1]; Xu, MY (Xu, Mengya)[1]; Ru, H (Ru, Hu)[2]; Wang, W (Wang, Wen)[2]; Weng, M (Weng, Min)[1]


Abstract: Transport planning is gradually shifting targets towards modifying the pedestrian streetscapes that favor walking and enhance urban sustainability. We cannot be optimistic about walkability on condition that walkable streets are not evenly distributed within urban settings. Auditing the street walkability and associated social inequalities in developing countries should provide critical implications for transport planning. This paper identifies the most common indicators in existing indicator classification frameworks based on word frequency; and then establishes an indicator classification system (connectivity, accessibility, suitability, serviceability, and perceptibility) through expert panel evaluation for auditing street walkability in China. Using a case of Hangzhou metropolitan area, a set of 13 indicators are first selected by referring to the established indicator classification system and then aggregated into an integrated walkability index (IWI) through the catastrophe theory (CT) model after appropriate data treatment (standardization, normalization and correlation calculation). Camera signaling data are employed to validate the developed IWI. Results show that IWI is efficient to audit street walkability. IWI presents great heterogeneity at segment level. In general, higher walkability is observed in streets across the central and western areas. Walkability profiles of the segments are further produced by the clustering approach and the categorized groups can inform more targeted planning options. Spatial regression is finally utilized to
quantify the associations between community socio-demographics and neighborhood IWI at two levels. We discover that lower neighborhood walkability would be observed in socioeconomically disadvantaged communities. These results suggest that significant social inequalities in street walkability should exist across the communities within Hangzhou metropolitan area. The developed IWI not only brings a standardized measurement of street walkability in the field of transport planning, but also paves the way for addressing the social inequalities in street design across various jurisdictions.

Record 74

Title: Shortest path distance vs. least directional change: Empirical testing of space syntax and geographic theories concerning pedestrian route choice behaviour

Author(s): Shatu, F (Shatu, Farjana)[1]; Yigitcanlar, T (Yigitcanlar, Tan)[1]; Bunker, J (Bunker, Jonathan)[1]


Abstract: Existing knowledge on the impact of built environment (BE) on route choice behaviour is doubtful due to an unresolved tension between two schools of thought. One represented BE geographically and found that most people tend to choose the shortest route. The other represented BE topologically and showed that least directional change is a key determinant of route choice. How do pedestrians make a trade-off between these two factors in route choice? This question is answered using walking route data of 178 pedestrians in Brisbane, Australia. Their reported routes were examined against the corresponding shortest path and least directional change routes using the percent overlap method. The effects of 25 additional BE factors were also estimated in a conditional logit model. The results reveal that: (a) Together distance and direction are likely to explain 53% of route choice decisions; (b) Individually, distance and direction are likely to explain 34% and 46% of route choice decisions respectively; (c) 28% of the chosen routes satisfied both distance and direction criteria. These findings confirm the claims of both schools, but also point that the least directional change route is a preferred option, and that pedestrians tend to minimise both criteria if they can.

Record 75

Title: Integrating police reports with geographic information system resources for uncovering patterns of pedestrian crashes in Denmark

Author(s): Prato, CG (Prato, Carlo G.)[1]; Kaplan, S (Kaplan, Sigal)[2]; Patrier, A (Patrier, Alexandre)[3]; Rasmussen, TK (Rasmussen, Thomas K.)[3]


Abstract: Promoting walking goes a long way in contributing to the sustainability and health of future cities and regions, and improving pedestrian safety is essential for building more sustainable and healthier communities. As the problem is multifaceted in nature, this study looks at patterns of pedestrian crashes from a perspective that goes beyond the traditional investigation of pedestrian characteristics and behaviour by analysing the contribution of built environment, land use, and traffic conditions. Moreover, this study goes beyond the traditional analysis of traditional police reports by integrating them with rich geographic information system resources. This study analysed a sample of 7469 crashes between a pedestrian and another road user that occurred in Denmark between 2006 and 2015. The crash locations were geocoded and matched to a detailed traffic network, a transport planning model, and several resources detailing building and land use composition. Latent class analysis uncovered patterns of pedestrian crashes for both the fully identified records and the substantial amount of hit-and-run records. Findings from this study reveal a major red thread in the lack of hazard awareness for both pedestrians and road users and suggest solutions from both the behavioural and the infrastructure perspectives. Major needs are (i) educating pedestrians about the risks related to drinking and then walking along major roads.
in the darkness, (ii) making crossings for pedestrians and approaches for road users easier to understand and to access in order to reduce unnecessary conflicts, and (iii) designing traffic calming solutions around major shopping and leisure locations in dense city centres.

Record 76

Title: Housing Subsidies and Early Childhood Development: A Comprehensive Review of Policies and Demonstration Projects

Author(s): Aratani, Y (Aratani, Yumiko)[ 1 ] ; Lazzeroni, S (Lazzeroni, Sarah)[ 2 ] ; Brooks-Gunn, J (Brooks-Gunn, Jeanne)[ 2 ] ; Hernandez, D (Hernandez, Diana)[ 3 ]


Abstract: In this article, we ask how housing subsidies might influence young children. We examine two national housing policies - public housing assistance and the Section 8 vouchers program - and two demonstration projects that aimed to improve the administration of providing housing subsidies - HOPE (Homeownership Opportunities for People Everywhere) VI and Moving to Opportunity. This article is a critical examination of these policies and demonstration projects in relation to the following housing dimensions that promote the healthy development of young children: income supplements residential stability, physical environment, access to services and amenities, housing choice, neighborhood safety, and social capital. We compared advantages and limitations of each of these national housing policies and demonstration projects and examined ways in which they might influence children in these housing dimensions. The article concludes with implications and future research directions for U.S. housing policy by discussing its most recent U.S. Department of Housing and Urban Development (HUD) initiative, Rental Assistance Demonstration, in addressing limitations of housing policies and demonstration projects we examined.

Record 77

Title: Are some neighborhoods bad for your waistline? A test of neighborhood exposure effects on BMI

Author(s): Ou, SS (Ou, Susan)[ 1 ]


Abstract: I study the causal impact of neighborhoods on body mass index (BMI). Through exploiting variation in the number of years individuals have lived in their neighborhood, using a data set from California, I examine if there exist causal effects of exposure to neighborhoods with high potential effects on one’s BMI. The identifying assumption is that there are no unobserved individual level characteristics correlated with both BMI and moving, after controlling for observables. I find evidence that suggests that neighborhoods do not have a causal impact on BMI.

Record 78

Title: Association between Urban Greenness and Depressive Symptoms: Evaluation of Greenness Using Various Indicators

Author(s): Song, H (Song, Hyeonjin)[ 1 ] ; Lane, KJ (Lane, Kevin James)[ 2 ] ; Kim, H (Kim, Honghyok)[ 3 ] ; Kim, H (Kim, Hyomin)[ 3 ] ; Byun, G (Byun, Garam)[ 3 ] ; Le, M (Le, Minh)[ 3 ] ; Choi, Y (Choi, Yongsoo)[ 3 ] ; Park, CR (Park, Chan Ryul)[ 1 ] ; Lee, JT (Lee, Jong-Tae)[ 3,4 ]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH Volume: 16 Issue: 2 Article Number: 173 DOI: 10.3390/ijerph16020173 Published: JAN 2 2019 Document Type:Article
Abstract: An increasing number of studies have suggested benefits of greenness exposure on mental health. We examined the association between urban greenness and depressive symptoms in adults in the general population living in the seven major cities in Korea (N = 65,128). Using data from the Korean Community Health Survey 2009, depressive symptoms were measured on the Center for Epidemiological Studies Depression Scale (CES-D). Greenness was assessed using Normalized Difference Vegetation Index (NDVI) and land-use data (forest area and forest volume). Logistic regression models were fitted to adjust for potential confounders. Individuals in regions with the highest NDVI (quartile 4) had the lowest odds for depressive symptoms compared to quartile 1, after adjusting for potential confounders (OR = 0.813; 95% CI: 0.747, 0.884). For all greenness indicators except for forest area per district area (%), the highest rate of depressive symptoms was found for the individuals in the lowest quartile of greenness (quartile 1) and the lowest rate of depressive symptoms for those in the highest quartile of greenness (quartile 4). We found an inverse association between urban greenness and depressive symptoms, which was consistent across a variety of greenness indicators. Our study suggests health benefits of greenness and could provide a scientific basis for policy making and urban planning.

Record 79
Title: Parental Correlates of Outdoor Play in Boys and Girls Aged 0 to 12A Systematic Review
Author(s): Boxberger, K (Boxberger, Karolina)[ 1 ] ; Reimers, AK (Reimers, Anne Kerstin)[ 1 ]
Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 2 Article Number: 190 DOI: 10.3390/ijerph16020190 Published: JAN 2 2019 Document Type:Review
Abstract: Outdoor play is one major source of physical activity (PA) in children. In particular, parents act as gatekeepers, because they can enable their children's outdoor play. This systematic review aims to provide an overview of parental correlates of outdoor play. A systematic literature research of six electronic databases (ERIC, PsycARTICLES, PsycINFO, PubMed/Medline, SCOPUS, and Web of Science Core Collection) was conducted with previously defined search terms, focusing on children 0-12 years old. In total, 1719 potentially publications were screened based on eligibility criteria. Included studies were scored for overall study quality. Findings were summarized using a semi-quantitative method. Twenty-one peer-reviewed publications which examined the relationship of parental correlates and outdoor play were included. Overall, five parental correlates were associated with children's amount of outdoor play: mothers' ethnicity, mothers' employment status, parents' education level, the importance parents assign to outdoor play, and perceived social cohesion in the neighborhood. Merely four studies reported sex/gender-stratified results. In summary, only parents' encouragement/support provided evidence for girls' amount of outdoor play. The findings are considered to be of public health relevance for developing intervention programs to increase outdoor play and for improving child's health. More research, especially considering sex/gender of the child, is required.

Record 80
Title: Barriers and Facilitators for the Implementation and Evaluation of Community-Based Interventions to Promote Physical Activity and Healthy Diet: A Mixed Methods Study in Argentina
Author(s): Belizan, M (Belizan, Maria)[ 1 ] ; Chaparro, RM (Martin Chaparro, R.)[ 1 ] ; Santero, M (Santero, Marilina)[ 1 ] ; Elorriaga, N (Elorriaga, Natalia)[ 1 ] ; Kartschmit, N (Kartschmit, Nadja)[ 2 ] ; Rubinstein, AL (Rubinstein, Adolfo L.)[ 1 ] ; Irazola, VE (Irazola, Vilma E.)[ 1 ]
Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 2 Article Number: 213 DOI: 10.3390/ijerph16020213 Published: JAN 2 2019 Document Type:Article
Abstract: Background: Obesogenic environments promote sedentary behavior and high dietary energy intake. The objective of the study was to identify barriers and facilitators to the implementation and impact evaluation of projects oriented to promote physical activity and healthy diet at community level. We
analyzed experiences of the projects implemented within the Healthy Municipalities and Communities Program (HMCP) in Argentina. Methods: A mixed methods approach included (1) in-depth semi-structured interviews, with 44 stakeholders; and (2) electronic survey completed by 206 individuals from 96 municipalities across the country. Results: The most important barriers included the lack of: adequate funding (43%); skilled personnel (42%); equipment and material resources (31%); technical support for data management and analysis (20%); training on project designs (12%); political support from local authorities (17%) and acceptance of the proposed intervention by the local community (9%). Facilitators included motivated local leaders, inter-sectorial participation and seizing local resources. Project evaluation was mostly based on process rather than outcome indicators. Conclusions: This study contributes to a better understanding of the difficulties in the implementation of community-based intervention projects. Findings may guide stakeholders on how to facilitate local initiatives. There is a need to improve project evaluation strategies by incorporating process, outcome and context specific indicators.

Record 81

Title: Estimating walking access levels incorporating distance thresholds of built environment features

Author(s): Saghapour, T (Saghapour, Tayebeh)[ 1 ] ; Moridpour, S (Moridpour, Sara)[ 1 ] ; Thompson, RG (Thompson, Russell G.][ 2 ]


Abstract: Physical inactivity has become a major public health challenge in recent decades, and active travel can contribute to more sustainable and healthy travel habits. Walking as a mode of transportation can provide health benefits, and the impact of the built environment on physical activity has been highlighted in numerous studies. This paper introduces a new approach to the quantification of walkability incorporating distance thresholds. The paper presents the research context for the Walking Access Index (WAI), a description of the methodology developed, and an application of the proposed index in the Melbourne metropolitan area, Australia. An integrated approach combining transport and land-use planning concepts was employed to construct the WAI. Using the Victorian Integrated Survey of Travel and Activity (VISTA) dataset, separate negative binomial regression (NBR) models have been applied to examine how the new index performs compared to an existing approach. Key findings indicate that a greater number of residents are likely to have walking trip stages when living in a more walkable environment. Furthermore, it was found using statistical modeling that the WAI produces better results than one of the common approaches.

Record 82

Title: Associations of built environments with spatiotemporal patterns of public bicycle use

Author(s): Liu, HC (Liu, Hung-Chi)[ 1 ] ; Lin, JJ (Lin, Jen-Jia)[ 1 ]


Abstract: This study examines the association of built environment attributes with spatiotemporal patterns of public bicycle use. The study observations are based on the rental records of YouBike, which is a public bicycle system (PBS) in Taipei Metropolitan Area, Taiwan, from July to December 2015. A hierarchical clustering method is applied to identify the spatiotemporal patterns of YouBike use, and multinomial logit regression is used to clarify the associations. Empirical results indicate that the spatiotemporal patterns of PBS utilization differ in weekdays and holidays and are associated with locations, land use and facilities in a city. The empirical evidence fills the knowledge gap on the factors associated with the spatiotemporal patterns of PBS use and provides system operators with a valuable basis for the integrated planning and management of PBSs and built environments.

Record 83
Title: An environment-people interactions framework for analysing children's extra-curricular activities and active transport

Author(s): Leung, KYK (Leung, Kevin Y. K.)[ 1 ] ; Astroza, S (Astroza, Sebastian)[ 2,3 ] ; Loo, BPY (Loo, Becky P. Y.)[ 1 ] ; Bhat, CR (Bhat, Chandra R.)[ 2,4 ]


Abstract: In this paper, the focus is on examining children's extra-curricular activities in a high density urban East Asian environment, specifically Hong Kong. The paper offers a framework to understand children's extra-curricular activities time allocation and active travel participation. Three variables of interest are considered: residential location choice (based on residential density), weekly time spent in four different types of out-of-home after school activities (academic, sports, arts, and other), and level of active travel. The proposed model takes into account common observed and unobserved effects that can be affecting the three outcomes simultaneously. Overall, the findings, based on survey data collected at four primary schools between November 2015 and June 2016 in Hong Kong, show that children's activity and travel behaviour within the same city can differ quite substantially based on neighbourhood environment (notably residential density) and family socio-demographic background. The empirical findings and analysis provide insights for policy development, including those related to (a) targeting children's extra-curricular activity participation for underprivileged groups, (b) promoting work friendly policies that enable parents to spend more time and participate in more activities together with their children, as well as (c) promoting mixed use and compact development to encourage a more active lifestyle for children and parents alike.

Record 84

Title: Bicycle train intermodality: Effects of demography, station characteristics and the built environment

Author(s): Weliwitiya, H (Weliwitiya, Hesara)[ 1 ] ; Rose, G (Rose, Geoffrey)[ 1 ] ; Johnson, M (Johnson, Marilyn)[ 1 ]


Abstract: As public transport patronage levels increase worldwide, an issue many cities face is providing adequate infrastructure capacity for station access modes. A cost effective solution is to encourage the use of the bicycle for the 'first mile' link, particularly for rail commuters who currently drive but are within a cycling distance of the station. However, to promote cycling as a station access mode, a better understanding of the associated correlates are needed. This study aims to address this knowledge gap by identifying factors associated with increased rates of bicycle access to stations in Melbourne, Australia. Bicycle access counts at 207 metropolitan rail stations were analysed and factors related to the rail station catchment areas (demographic data and built/natural environment) and rail station characteristics were considered. Visual representation of the demographic and built/environment characteristics and eight generalized linear models were developed to identify significant factors. A higher number of cyclists riding to the station were associated with a range of factors including built/ natural environments: low sloping terrain; greater proportion of low speed local roads, diverse land use mix and increased bicycle crash count density. Station attributes: availability of secure bicycle parking facilities, increased train patronage, higher train frequency during the morning peak period and demographic characteristics: increasing median age were also correlated with a growth in bicycle access counts to stations.

Record 85

Title: An activity-related land use mix construct and its connection to pedestrian travel

Author(s): Gehrke, SR (Gehrke, Steven R.)[ 1 ] ; Clifton, KJ (Clifton, Kelly J.)[ 1 ]

Abstract: Integrating a diverse set of land use types within a neighborhood is a central tenet of smart growth policy. Over a generation of urban planning research has heralded the transportation, land use, and public health benefits arising from a balanced supply of local land uses, including the improved feasibility for pedestrian travel. However, land use mixing has largely remained a transportation-land use planning goal without a conceptually valid set of environmental indicators quantifying this multifaceted spatial phenomenon. In this study, we incorporated activity-based transportation planning and landscape ecology theory within a confirmatory factor analysis framework to introduce a land use mix construct indicative of the paired landscape pattern aspects of composition and configuration. We found that our activity-related land use mix measure, and not the commonly adopted entropy-based index, predicted walk mode choice and home-based walk trip frequency when operationalized at three geographic scales.

Record 86

Title: The Relationships between Park Quality, Park Usage, and Levels of Physical Activity in Low-Income, African American Neighborhoods

Author(s): Knapp, M (Knapp, Megan)[ 1 ] ; Gustat, J (Gustat, Jeanette)[ 2 ] ; Darensbourg, R (Darensbourg, Revonda)[ 1 ] ; Myers, L (Myers, Leann)[ 3 ] ; Johnson, C (Johnson, Carolyn)[ 1 ]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
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Abstract: Parks can be an important, low-cost neighborhood resource to increase physical activity and reduce overweight and obesity. The quality of parks, however, may impact use. This study used observational data to examine the relationships between park quality, park usage and levels of physical activity among users in 31 parks within low-income, African American neighborhoods. Relationships between park use and park characteristics (signs of disorder, attractiveness, and number of activity settings) varied by gender and user activity level. No variables of interest were significant for overall number of male users; whereas, disorder and attractiveness were significant for overall number of female users. Parks with signs of disorder were associated with 49% fewer female users (IRR = 0.51, 95% CI = (0.34-0.77)) and attractive parks with 146% more female users (IRR = 2.46, 95% CI = (1.39-4.33)). Similar significant relationships were found among active but not sedentary female users. Communities may consider increasing park maintenance and addressing attractiveness in existing parks as a relatively low-cost environmental strategy to encourage park use, increase physical activity, and reduce the burden of obesity, especially among women in low-income, African-American communities.

Record 87

Title: Environmental, Individual and Personal Goal Influences on Older Adults' Walking in the Helsinki Metropolitan Area

Author(s): Laatikainen, TE (Laatikainen, Tiina E.)[ 1 ] ; Haybatollahi, M (Haybatollahi, Mohammad)[ 2 ] ; Kytta, M (Kytta, Marketta)[ 1 ]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volume: 16 Issue: 1 Article Number: 58 DOI: 10.3390/ijerph16010058 Published: JAN 1 2019 Document Type:Article

Abstract: Physical activity is a fundamental factor in healthy ageing, and the built environment has been linked to individual health outcomes. Understanding the linkages between older adult's walking and the built environment are key to designing supportive environments for active ageing. However, the variety of different spatial scales of human mobility has been largely overlooked in the environmental health research. This study used an online participatory mapping method and a novel modelling of individual activity spaces to study the associations between both the environmental and the individual features and older adults' walking in the environments where older adult's actually move around. Study participants (n = 844) aged 55+ who live in Helsinki Metropolitan Area, Finland reported their everyday errand points on a
map and indicated which transport mode they used and how frequently they accessed the places. Respondents walking trips were drawn from the data and the direct and indirect effects of the personal, psychological as well as environmental features on older adults walking were examined. Respondents marked on average, six everyday errand points and walked for transport an average of 20 km per month. Residential density and the density of walkways, public transit stops, intersections and recreational sports places were significantly and positively associated with older adult’s walking for transport. Transit stop density was found having the largest direct effect to older adults walking. Built environment had an independent effect on older adults walking regardless of individual demographic or psychological features. Education and personal goals related to physical activities had a direct positive, and income a direct negative, effect on walking. Gender and perceived health had an indirect effect on walking, which was realized through individuals’ physical activity goals.

Record 88

Title: Built Environment, Psychosocial Factors and Active Commuting to School in Adolescents: Clustering a Self-Organizing Map Analysis

Author(s): Molina-Garcia, J (Molina-Garcia, Javier)[1,2]; Garcia-Masso, X (Garcia-Masso, Xavier)[1,3]; Estevan, I (Estevan, Isaac)[1,2]; Queralt, A (Queralt, Ana)[2,4]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
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Abstract: Although the built environment and certain psychosocial factors are related to adolescents’ active commuting to and from school (ACS), their interrelationships have not been explored in depth. This study describes these interrelationships and behavioral profiles via a self-organizing map (SOM) analysis. The sample comprised 465 adolescents from the IPEN (International Physical Activity and the Environment Network) Adolescent study in Valencia, Spain. ACS, barriers to ACS, physical self-efficacy, social support and sociodemographics were measured by questionnaire. Street-network distance to school, net residential density and street intersection density were calculated from the Geographic Information System. The clustering of the SOM outcomes resulted in eight areas or clusters. The clusters which correspond to the lowest and highest ACS levels were then explored in depth. The lowest ACS levels presented interactions between the less supportive built environments (i.e., low levels of residential density and street connectivity in the neighborhood and greater distances to school) and unfavorable psychosocial variables (i.e., low values of physical self-efficacy and medium social support for ACS) and good access to private motorized transport at home. The adolescents with the lowest ACS values exhibited high ACS environment/safety and planning/psychosocial barrier values. Future interventions should be designed to encourage ACS and change multiple levels of influence, such as individual, psychosocial and environmental factors.

Record 89

Title: More than Fast Food: Development of a Story Map to Compare Adolescent Perceptions and Observations of Their Food Environments and Related Food Behaviors

Author(s): Riggsbee, KA (Riggsbee, Kristin A.][1]; Riggsbee, J (Riggsbee, Jonathon)[2]; Vilario, MJ (Vilario, Melissa J.][3]; Moret, L (Moret, Lauren)[4]; Spence, M (Spence, Marsha)[1]; Steeves, EA (Steeves, Elizabeth Anderson)[1]; Zhou, WJ (Zhou, Wenjun)[5]; Olfert, MD (Olfert, Melissa D.)[6]; Franzen-Castle, L (Franzen-Castle, Lisa)[7]; Horacek, T (Horacek, Tanya)[8]; Hall, E (Hall, Elizabeth)[1]; Colby, S (Colby, Sarah)[1]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
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Abstract: The purpose of this convergent, multiphase, mixed methods study was to better understand the perceptions of adolescents’ food environments and related food behaviors using grounded visualization
and story mapping. Adolescents from one high school (13-16 years) in the southeastern United States were evaluated via data from health behavior surveys (n = 75), school environment maps, focus groups (n = 5 groups), and Photovoice (n = 6) from October 2016 to April 2017. Data from each phase were integrated using grounded visualization and new themes were identified (n = 7). A story map using ArcGIS Online was developed from data integration, depicting the newly identified themes. Participants failed to meet national recommendations for fruit and vegetable intake (2.71 cups). Focus group and Photovoice findings indicated the need for convenience food items in all environments. The story map is an online, interactive dissemination of information, with five maps, embedded quotes from focus groups, narrative passages with data interpretation, pictures to highlight themes, and a comparison of the participants’ food environments. Story mapping and qualitative geographic information systems (GIS) approaches may be useful when depicting adolescent food environments and related food behaviors. Further research is needed when evaluating story maps and how individuals can be trained to create their own maps.

Record 90

Title: Improving Physical Activity among Residents of Affordable Housing: Is Active Design Enough?

Author(s): Tannis, C (Tannis, Candace)[1]; Senerat, A (Senerat, Araliya)[1]; Garg, M (Garg, Malika)[1]; Peters, D (Peters, Dominique)[1]; Rajupet, S (Rajupet, Sritha)[1,2]; Garland, E (Garland, Elizabeth)[1]

Source: INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH

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Abstract: Physical inactivity increases risk of chronic disease. Few studies examine how built environment interventions increase physical activity (PA). Active design (AD) utilizes strategies in affordable housing to improve resident health. We assessed how AD housing affects PA among low-income families in Brooklyn, New York. Participants were recruited at lease signings in 2016 from a new AD apartment complex and two recently renovated comparison buildings without AD features. Eligibility included age 18 years with no contraindications to exercise. Anthropometric data were collected. PA was self-reported using the Recent and Global Physical Activity Questionnaires. Smartphone users shared their tracked step. Data collection was repeated one year after move-in. All data were analyzed using SPSS. Eighty-eight eligible participants completed the initial questionnaire (36 AD and 52 from 2 comparison buildings) at baseline (T0). There were no differences between AD and comparison cohorts in: stair use, PA, sitting time or, mean waist-to-hip ratio (WHR) at T0. However, the AD cohort had a lower baseline BMI (27.6 vs. 31.0, p = 0.019). At one-year follow-up (T1), 75 participants completed our survey including a 64% retention rate among those who previously completed the T0 questionnaire. Among T0 questionnaire respondents, mean daily steps increased at T1 among AD participants who moved from an elevator building (6782, p = 0.051) and in the comparison group (2960, p = 0.023). Aggregate moderate work-related activity was higher at T1 in the AD building (746 vs. 401, p = 0.031). AD building women reported more work-related PA overall but AD men engaged in more moderate recreational PA. Living in an AD building can enhance low-income residents’ PA. More research with objective measures is needed to identify strategies to sustain higher PA levels and overall health.

Record 91

Title: Urban community gardening, social capital, and “integration” - a mixed method exploration of urban “integration-gardening” in Copenhagen, Denmark

Author(s): Christensen, S (Christensen, Soren)[1]; Dyg, PM (Dyg, Pernille Malberg)[2]; Allenberg, K (Allenberg, Kurt)[1]

Abstract: This study examines a community garden in Copenhagen, Denmark, "The Urban Integration Gardens" that endeavours to strengthen social integration in the local multicultural neighbourhood. The "community" in the gardens is explored, with a focus on how they foster social capital, particularly opportunities for "bridging" social capital. A mixed-methods approach is used, by employing a qualitative analysis of gardeners' perceptions of "community", diversity and inclusivity, through the lens of "cognitive" social capital, and the meanings the gardeners assign to their experiences, and how they understand their involvement in the gardens. We also examine "structural" dimensions of social capital, involving quantitative data from a questionnaire and data from Statistics Denmark, comparing data concerning socio-demographic backgrounds from gardeners and residents in the local neighbourhood and Copenhagen. Major findings include that the garden generates both bonding and bridging "cognitive" social capital, and the gardeners consistently agreed that the garden has a strong community, and is permeated by diversity and inclusivity. Nonetheless, data from Denmark's Statistics Office reveal that the garden does not "represent" the diversity in the neighbourhood regarding the distribution of members with a Western/non-Western background, as well as social class. This suggests that endeavours to involve co-citizens with non-Western backgrounds and gardeners with lower social status are restrained by potential structural barriers, which limits the "width" of bridging social capital in the garden.