Study	Participants	Sampling method	Setting	Study design	Dependent variables	Independent variables	Relationship (+, 0, -)	Comments
Arnadottir et al (2009)	-n= 186 urban and rural older adults *Urban* -n= 118 -mean age= 74 ± 6.3 y -53% F *Rural* -n= 68 Mean age= 74± 6.2 y 40% F	-clusters: purposeful -individuals: random -r.r. (urban)= 78% -r.r. (rural)= 80%	-1 urban and 2 rural areas in northern Iceland	CS	*Subjective* -total PA score -Leisure PA score (PASE)	*Objective* Rural vs Urban	*ANCOVA (controlled for education, fitness and depression)* -total PA: no differences -leisure PA: higher for urban subjects	-Urban area had ± 16,500 inhabitants, no more than 200 m between houses, earnings other than from farming. Rural areas had ± 1000 inhabitants, farms or other isolated houses, majority had earnings from farming. -PASE psychometrics were formerly assessed in other older populations, for this study translated into Icelandic. -no differences were found for total PA, rural men had highest work PA, rural females higher home PA (vs urban) and urban males higher home PA (vs rural)
Berke et al (2006)	-n= 8,162 -mean age unstructured participants & nonparticipants= 71.9± 6.3y -mean age structured participants & non-participants= 75.8± 7.0y -unstructured: 59%F participants & 60%F nonparticipants -structured: 76%F	-clusters: convenience -individuals: not reported	Puget Sound counties (USA)	CS	*Objective* -uptake of a structured program -uptake of an unstructured -visit frequency (only in participants)	*Objective (GIS)* -distance to the facility	*<u>Structured Program</u>*** *Participants vs nonparticipants* -distance to the facility (-) *Frequency (only in participants)* -distance to the facility (0) *<u>Unstructured Program</u>* *Participants vs nonparticipants* -distance to the facility (-) *Frequency (only in participants)* -distance to the facility (-)	*all subjects were recruited from a consumer-governed health-maintenance organization. 3 nonparticipants were matched to 1 structured participant (same for unstructured participants). **Associations were analyzed through odds ratios for uptake and linear regression for frequency. Analyses were controlled for age, gender, disease risk, prevention and median household income

Berke et al (2007)	-n= 936 -mean age= 78.5 ± 6.1 y -64.2% F -69.7% › 12 y education -63.2% overweight or obese	-clusters: convenience -individuals: random*	King County , Washington (USA). Residential areas with medium and high residential density, with services close to home	CS	*Subjective* Any vs none weekly walking for exercise (IPAQ-long)	*Objective* Walkability score within 100, 500 and 1000m buffer radius (1^{st} vs 4^{th} quartile)	*Multiple logistic regression* Subjects who changed address in past 2 years Men 100m walkability score (+) 500m walkability score (+) 1000m walkability score (+) Women 100m walkability score (+)** 500m walkability score (+)** 1000m walkability score (+)** Subjects living at the same address Men 100m walkability score (0) 500m walkability score (0) 1000m walkability score (0) Women 100m walkability score (+) 500m walkability score (+)** 1000m walkability score (+)**	*Participants were randomly selected from Group Health patients in clinics serving western King County. Therefore participants might vary from the general population with respect to income and education. **only trend to significance -walkability score based upon: distance to closest grocery store; residential density; # grocery stores, restaurants or retail clusters; # educational parcels; # grocery stores or markets; size of closest office complex; distance to closest office / mixed-use complex; size of block -buffer radii were defined using Euclidean distances -Originally 1967 participants were eligible: 90% of participants were successfully geo-coded, only 53% of these lived inside the define spatial sample frame -analyses were controlled for depression, income, education, tobacco use, living alone, arthritis, age and chronic disease
Bird et al (2009)	-n= 72 (26 Anglo-Celtic, 20 Italian and 26 Vietnamese) -mean age= 69.3 ± 6.7y -100% F	-clusters: purposeful -individuals: convenience	Suburbs of the Western Region of Melbourne (region of relative socioeconomic disadvantage)	CS	*Subjective* MET-minutes per week of total PA (IPAQ)	*Subjective* -walkability -aesthetics -fear and safety from crime (NEWS) -'how safe do you feel while you are walking?' (St. Louis safe	*Multiple regression analysis** -walkability (0) -aesthetics (0) -fear and safety from crime (0) -'how safe do you feel while you are walking?' (0) -availability of public recreation facilities (0) -perceived condition of public recreation facilities (0)	-all instruments are established and internationally validated *No significant associations for environmental factors were found in the final model. Only sign. associations were found for living alone and fear of injury.

						walking) -availability of public recreation facilities -perceived condition of public recreation facilities (ESPA)		
Borst et al (2009)	-n= 364 -mean age= 68.0 ± 7.1y -9% of non-Dutch descent	-clusters: purposeful -individuals: random -r.r.= 31.7%	3 urban districts of Schiedam (The Netherlands)	CS	*Subjective* Link resistance*	*Objective (GIS)* -pavement -ramps on/off pavement -slopes and/or stairs -quality of pavement -obstacles -zebra crossings -trees along route -waste terrain -green strips -front gardens -blind walls -benches -bus or tram stops -litter on street -dog droppings -graffiti -dwellings, ground level -dwellings, first floor -high rise (›3 storeys) -shops -business buildings -catering establishments -vacant buildings -park -city centre -traffic volume -link length	*Multivariate linear regression model* -pavement (-) -ramps on/off pavement (0) -slopes and/or stairs (+) -quality of pavement (0) -obstacles (0) -zebra crossings (0) -trees along route (0) -waste terrain (0) -green strips (+) -front gardens (-) -blind walls (+) -benches (0) -bus or tram stops (0) -litter on street (+) -dog droppings (0) -graffiti (0) -dwellings, ground level (0) -dwellings, first floor (-) -high rise (›3 storeys) (0) -shops (-) -business buildings (0) -catering establishments (0) -vacant buildings (0) -park (+) -city centre (0) -traffic volume (-) -link length (-)	*link resistance= a measure describing the utility of a walking route. Walking routes for shopping, to health care facilities and for visiting relatives or friends were obtained by linking travel diaries and street maps to GIS. Link resistance was determined by comparing the reported and estimated number of trips along each link. An increase in link resistance decreases the likelihood that the route will be walked along. -The final model explained 12% of the variance in link resistance. -Model was not corrected for perceived safety. -Inter-rater reliability (link observations) was not determined

Chad et al (2005)	-n= 764 -mean age= 77.4 ± 8.6y -79.8% F -38.6% postsecondary education -primarily Caucasian	-convenience sample: recruitment from seniors' organizations, service clubs and seniors' housing units	A mid-sized Canadian city	CS	*Subjective* Total PA (PASE)	*Subjective* The presence of: -hills -enjoyable scenery -sidewalks -biking lanes or trails -walking or hiking trails -water fountains -benches -street lights -golf course -public park -skating rink -swimming pool -tennis courts -dance studio -public recreation center -heavy traffic -unattended dogs -high crime -type of neighborhood	*t-test, ANOVA, Mann-Whitney test or Kruskal-Wallis test* -hills (+) -enjoyable scenery (0) -sidewalks (0) -biking lanes or trails (+) -walking or hiking trails (+) -water fountains (0) -benches (-) -street lights (+) -golf course (+) -public park (+) -skating rink (+) -swimming poo (+)l -tennis courts (+) -dance studio (0) -public recreation center (0) -heavy traffic (0) -unattended dogs (+) -high crime (-) -type of neighborhood: higher PA in residential neighborhood compared to commercial and mixed neighborhoods)	-analysis stratified for age categories were also performed, but compared with the overall sample there was no apparent pattern between PA and environment in each age group. -underrepresentation of males, persons aged 50-64y and persons of non-Caucasian background) -all measures were validated in previous studies
Chen et al (2008)	-n= 499 -mean age= 70.49 ± 7.50y -50.4% F	-clusters: purposeful -individuals: random	Taiwan (nationwide)	CS	*Subjective* LTPA (2007 module on leisure time and sports of the International Social Survey Program*)	*Subjective* Urban vs rural**	*Pearson correlation* -subjects in urban areas spent more time in LTPA *Ordinal regression (controlled for other background variables)* -no association	*LTPA was measured by: 'how often do you engage in PA in your free time? 5 items (every day – never). **5 items (farm house – large city) -Psychometrics of the questionnaires used were not reported -other background variables are not specified

Fisher et al (2004)	-n= 582 -mean age= 73.99 ± 6.25y -[64 – 94 y] -68.6% F -89.1% white -55.4% college or university degree	-clusters: purposeful -individuals: random -r.r.= 30.5%	56 neighborhoods in Portland, Oregon (average sample size in a neighborhood= 10)	CS	*Subjective* -neighborhood walking activity score*	*Objective* -low income -senior population density -facilities per neighborhood acre *Subjective* -neighborhood problems (scale adapted from Sallis et al (1997)) -safety for walking activity (scale adapted from Sallis et al (1997))	*<u>Multilevel structural equation modeling</u>* *Objective* -low income (+) -senior population density (+) -facilities per neighborhood acre (+) *Subjective* -neighborhood problems (0) -safety for walking activity (0)	-All variables were used at the neighborhood level. Neighborhoods were city defined neighborhoods with clearly defined street boundaries and a neighborhood association. *test-retest reliability (r= 0.61) and validity (r= 0.30) -no item measuring walking for transportation was included in score -all neighborhood-level(! not only built environment) variables jointly accounted for 84% of the variation in walking between neighborhoods -Portland has an overall high standard of living and a lower rate of crime and problems
Frank et al (2010)	-n= 1970 -60.8% [65-74y] -31.6% (75-84y] -7.6% 85+ y -56.3% F -76.2% White 62.4% no degree	-clusters: purposeful -individuals: random -r.r.= 30.4%*	Atlanta (USA)	CS	*Subjective* -transportation walking (walking at least once in the last 2 days) -total PA (meeting guidelines: 150 min MVPA / week)	*Objective* -walkability	*<u>Logistic regression</u>* *Transportation walking* -walkability (+) *Total PA* -walkability (0)	-walkability was splitted into tertiles, only those living in the highest tertile were siginificantly more likely to walk at least once in the last 2 days -data obtained from SMARTRAQ-survey -walkability was measured using a 1 km buffer radius (street network distance) *r.r. from the original sample, this included younger subjects as well (retrieved from previous article, Frank et al, 2004)
Kemperman et al (2009)	-n= 8,143 belonging to 5,999 households -31.3% 65 ≤ 69y 27.2% 70 ≤ 74y 21.3% 75 ≤ 79y 20.3% › 80y	-clusters: random -individuals: all individuals in cluster -r.r. (total sample, incl. younger	The Netherlands	-CS	*Subjective* Segments of travel mode choices (by a latent class segmentation analysis): car users, bike riders, inactives and walkers*	*Objective* -degree of urbanization (5 categories: from not to very strongly urbanized) -% of a particular type of land use	*Chi-square automatic interaction detection (CHAID)* *Walking* -degree of urbanization (+) -% recreation areas (+)** *Cycling* -degree of urbanization (-)	*based upon a travel diary including all trips (for leisure and transportation) made by a respondent during 1 day, psychometrics not reported. Includes trips for all purposes. **only in subjects › 72y living in strongly to very strongly urbanized

	-55.2% F -27.7% high income level	subjects)= 68.4%				(infrastructure, agricultural, recreation, forest and nature areas)	-% recreation areas (+)**	neighborhoods -% recreation areas= % recreation areas in postal code -degrre of urbanization= degree of urbanization in a radius of 1km
Lee et al (2009)	*1988* -n= 4918 -mean age= 70 y *1993* -n= 4997 *1988 – 1993* -n= 3448 -All subjects= Harvard alumni -100% M	-clusters: convenience -individuals: convenience	USA	-CS (1988 and 1993) -L (1988–1993)	*Subjective* *CS* -meeting PA recommendations (≥ 150min. / week MPA) based on all activities reported* -meeting PA recommendations (≥ 150min. / week MPA) based on walking alone *L* -change in mean energy expended on all activities -change in mean distance walked	*Objective* *CS* -sprawl index *L* -change in urban sprawl	*CS* *Logistic regression (controlling for age and smoking)* *1988* -meeting PA recommendations based on all activities reported: sprawl index (-) -meeting PA recommendations based on walking alone: sprawl index (-) *1993* -meeting PA recommendations based on all activities reported: sprawl index (0) -meeting PA recommendations based on walking alone: sprawl index (-) *L* *Linear regression (controlling for age, smoking and baseline energy expenditure)* -change in mean energy expended on all activities: change in urban sprawl (0) -change in mean distance walked: change in urban sprawl (0)**	-Sprawl index was measured at the county-level and was based on gross population density, % living at low and at high densities, county population per square mile of urban land, average block size, % of blocks 500 feet or smaller on a side. The larger the value, the less sprawling, the more dense. -in the longitudinal analyses: small numbers of men moving from more- to less-sprawling (3.9%) counties and vice versa (2.1%) *all activities= daily walking, stair climbing, sports and recreational activities in the past week **men moving to less sprawling areas even showed a trend towards decreased PA and a significant increase in BMI.

Li et al (2005a)	-n= 577 -mean age= 74 ± 6.3 y -64% F -92% white -88% high school degree or higher	-clusters: purposeful -individuals: random -31% r.r.	56 neighborhoods in Portland, Oregon (USA). Oversampling of neighborhoods below poverty level with 20%. Mean within neighborhood sample size= 10 [3 – 17]	CS	*Subjective* Neighborhood (total) walking	*<u>Neighborhood level</u>* *Objective (GIS)* -residential density -density of places of employment -number of street intersections -total green and open spaces for recreation *<u>Resident level</u>* *Objective (GIS)* -number of street intersections -total green and open spaces for recreation *Subjective* -proximity to local recreational facilities -safety for walking -safety from traffic -number of nearby recreational facilities	*<u>Multilevel path analysis</u>* *<u>Neighborhood level</u>* *Objective (GIS)* -residential density (+) -density of places of employment (+) -number of street intersections (+) -total green and open spaces for recreation (+) *<u>Resident level</u>* *Objective (GIS)* -number of street intersections (0) -total green and open spaces for recreation (0) *Subjective* -proximity to local recreational facilities (0) -safety for walking (+) -safety from traffic (0) -number of nearby recreational facilities (+)	-Neighborhood walking defined as walking + strolling + other PA -Neigborhood level: Neighborhoods were city defined neighborhoods with clearly defined street boundaries and a neighborhood association. -Resident level: buffer radius= 800m (0.5 miles) -Subjective independent variables (resident level) measured by 1 or 2 items with low test – retest reliability (r= 0.56 – 0.64) -sign. interaction between obj. number of street intersections and perception of safety from traffic (street intersections only contribute to walking when traffic is perceived as safe) -28% of the variation in walking was attributable to between neighborhood differences. -22% of the variation in walking (between neighborhoods) was explained by the 4 neighborhood level variables -9% of the variation in walking (within neighbourhoods)was explained by the resident level variables
Li et al (2005b)	-n= 303 -mean age= 73.94 ± 6.24y -[65 – 94y] -64% F -92% White -88% high school degree or higher	-clusters: purposeful -individuals: random -r.r.= 30.5%*	56 neighborhoods in Portland, Oregon (average sample size in a neighborhood= 10.82, [7 – 16])	-CS -L (12 mnths)	*Subjective* -CS: neighborhood recreational walking activity score -L: decrease in neighborhood recreational walking activity score	*Subjective* -access to neighborhood PA facilities** -safety of walking (Sallis et al, 1997)	*<u>Conditional multilevel growth model</u>* *CS* -access to neighborhood PA facilities (0) -safety of walking (0) *L* -access to neighborhood PA	-follow-up at 3, 6 and 12 months -on average, a linear decrease in walking from baseline to the 12-month follow-up was seen *original sample= 528 (see Fisher et al (2004)) for this study a subsample of 303 subjects was used **test – retest reliability r= 0.56 ***higher access and safety at

							facilities (-)*** -safety of walking (-)***	baseline was related with less decrease in walking at 12 months follow-up -see Fisher et al (2004)
Lim et al (2005)	-n= 8881 -mean age= 73.8 y -56.8% F -38.5% left school before 15 y	-clusters: convenience -individuals: random -r.r.= 70.7%	New South Wales (Australia)	CS	*Subjective* -meeting PA recommendations (≥ 150min. / week MVPA)*	*Subjective* -urban vs rural -neighborhood safety	*Cox's proportional hazards model* -meeting PA recommendations associated with rural area -neighborhood safety (0)	*subjects were asked the number of days in the last week spent engaging for at least half an hour in total in each of the following categories: walking, moderate activities such as dancing, golf or lawn bowls and vigorous gardening or yard work -questionnaires used were not reported -neighborhood safety was measured by 'do you feel safe in the neighborhood? (all or most of the time vs some or none of the time) -telephone interviews were used -strongest association found for ability to travel alone
Mendes de Leon et al (2009)	-n= 4,317 -mean age= 74.5 ± 6.7y -61% F -73% black -42% › 12y education	-clusters: convenience -individuals: all individuals in cluster -r.r.= 78.9%	3 adjacent neighborhoods, Chicago (USA)	CS	*Subjective* -walking for exercise (questions based upon the 1985 Health Interview Survey) -walking for transportation* -total walking	<u>*Subjective*</u> *Neighborhood level* Neighborhood problems** *Individual level* Neighborhood problems**	<u>*Multitlevel regression modeling (controlled for age, education, race, income, health status, years of residence and time of year)*</u> *Neighborhood level* *Walking for exercise* Neighborhood problems (0) *Walking for transportation* Neighborhood problems (-) *Total walking* Neighborhood problems (-)	-Unadjusted regression models are available for total walking only (results don't change) *psychometrics are not reported **questions derived from previous research, reliability (r= 0.85)

							Individual level *Walking for exercise* Neighborhood problems (0) *Walking for transportation* Neighborhood problems (+) *Total walking* Neighborhood problems (0)	
Michael et al (2006)	-n= 105 -mean age= 75.1 ± 6.29y -[65 – 92y] -67% F -90% Caucasian -46% college or university education	-clusters: purposeful -individuals: random*	10 neighborhoods in Portland, Oregon (USA)	CS	*Subjective* Neighborhood recreational walking (low vs high walkers)	*Objective (GIS + audit)* -graffiti and vandalism -sidewalk obstruction -presence of a mall -presence of a park -presence of a trail *Subjective* -graffiti and vandalism -sidewalk obstruction -presence of a mall -presence of a park -presence of a trail (Sallis et al, 1997)	<u>*Univariate logistic regression*</u> *Objective* -graffiti and vandalism (-) -sidewalk obstruction (0) -presence of a mall (+) -presence of a park (0) -presence of a trail (0) *Subjective* -graffiti and vandalism (0) -sidewalk obstruction (0) -presence of a mall (+) -presence of a park (0) -presence of a trail (+) <u>*Multivariate logistic regression (controlling for age, gender and education)*</u> *Objective* -graffiti and vandalism (-) -sidewalk obstruction (0) -presence of a mall (+) -presence of a park (0) -presence of a trail (0) *Subjective* -graffiti and vandalism (0) -sidewalk obstruction (0) -presence of a mall (+) -presence of a park (0) -presence of a trail (0)	*Analysis of the association between neighborhood environment and walking was limited to white, non-Hispanic participants because race acted as a moderator and there were too few non-White participants to stratify. -low walkers: reporting ‘not at all’, ‘a little bit’ or ‘a moderate amount’ of walking / strolling in the neighborhood over the past 12 months -high walkers: reporting ‘quite a bit’ or ‘a great deal’ of walking / strolling in the neighborhood over the past 12 months - Neighborhoods were city defined neighborhoods with clearly defined street boundaries and a neighborhood association. -there was limited variability in the built environment characteristics

Michael et al (2010)	-n= 422 -median age= 74y -100% M -90% White -86.5% any college/graduate school -68.0% overweight / obese	-clusters: convenience -individuals: purposeful	Portland, Oregon (USA)	L	*Subjective* Maintenance of or an increase in total walking time (PASE)	*Objective* -proximity to a park -proximity to a trail -proximity to recreational facilities	*Log-binomial regression (controlled for demographic and socioeconomic characteristics, health behaviors, chronic conditions, self-reported health and physical function* *Total sample* -proximity to a park (0) -proximity to a trail (0) -proximity to recreational facilities (0) *Separated by neighborhood SES* *Low-SES* -proximity to a park (0) -proximity to a trail (0) -proximity to recreational facilities (0) *High-SES* -proximity to a park (+)* -proximity to a trail (+)* -proximity to recreational facilities (0)	-subjects were enrolled from 6 US clinical centers -average follow-up= 3.6 years -study visits took place in different seasons -increase in walking time was defined as an increase of at least 30 minutes -walking time included walking for all reasons *proximity to a park (within vs further than one eight mile, network distance), proximity to a trail (within vs further than one half mile, straight-line distance)
Morris et al (2008)	-n= 136 -mean age= 69.7 ± 5.9y -100% F -84% White -46% university degree	-clusters: convenience -individuals: convenience	USA	CS	*Objective* Daily physical activity (accelerometer, worn for 7 days)	*Subjective* -residential density -land use mix -access to services -street connectivity -walking / cycling facilities -aesthetics -safety from traffic -safety from crime (NEWS*)	*Bivariate: Pearson product-moment correlations* -residential density (0) -land use mix (0) -access to services (0) -street connectivity (+) -walking / cycling facilities (+) -aesthetics (+) -safety from traffic (0) -safety from crime (0) *Multivariate: hierarchical multiple regression analyses*	-walking/cycling facilities and aesthetics was no longer associated with PA when controlling for self-efficacy and functional limitations -these older women reported few functional limitations and moderately high self-efficacy *low internal consistency of the street connectivity subscale of the NEWS

							-residential density (0) -land use mix (0) -access to services (0) -street connectivity (+) -walking / cycling facilities (0) -aesthetics (0) -safety from traffic (0) -safety from crime (0)	
Mowen et al (2007)	-n= 1515 -mean age= 67.4 ± 9.0 y -66% F -88% White -38% household income < $20,000	-clusters: purposeful -individuals: random -r.r.= 45%	Cuyahoga County, Ohio (USA)	CS	*Subjective* -park visitation frequency (as a mediator of PA)*	*Subjective* -Perceived presence of a park within walking distance *Objective* -distance to nearest park **	*Path analysis* *Subjective* -Perceived presence of a park within walking distance (+) *Objective* -distance to nearest park (0)	*park visitation frequency was measured by asking how often pp visited local parks (not at al, occasionally or frequently). PA was derived from a single, ordinal item about pp activity level (sedentary, moderate or vigorous activity). ** measured by straight-line distance in miles
Nagel et al (2008)	-n= 546 -mean age= 74.5 ± 6.3 y -70% F -89.1 % white	-clusters: purposeful -individuals: random	56 neighborhoods in Portland, Oregon (USA). Oversampling 20% of neighborhoods below poverty level. Mean within neighborhood sample size= 10 [3 – 17]	CS	*Subjective* -brisk walking -leisure walking -weekly walking time -walkers vs non-walkers (The Yale Physical Activity Scale)	*Objective (GIS, within quarter-mile and half-mile radii)* -% of high-volume streets -% of medium-volume streets -% of low-volume streets -% of sidewalk coverage -intersection frequency -public transportation access -number of commercial establishments -number of select establishments *Only within half-mile*	<u>Objective</u> *A. Multilevel linear regression* *Brisk walking* *Quarter-mile radius* -% of high-volume streets (+) -% of medium-volume streets (0) -% of low-volume streets (-) -% of sidewalk coverage (0) -intersection frequency (0) -public transportation access (0) -number of commercial establishments (0) -number of select establishments (0) *Half-mile radius* -% of high-volume streets (0) -% of medium-volume streets (0) -% of low-volume streets (0)	-same sample as Li et al (2005) -select establishments= convenience, deli or grocery stores; department, discount or hardware stores; restaurant, pub or bar; library; post office; church; and community center -perceived problems= gangs, graffiti, violent crime, vandalism, burglary, abandoned or boarded-up buildings and alcohol or drug use -same associations were found for quarter- and half-mile radii, magnitude of associations differed (stronger for commercial establishment at quarter-mile and stronger for street volume at half-mile) -3.6% of the variation in walking time explained by neighborhood differences

						radii -distance to the nearest park *Subjective* -poverty -perceived problems -perceived walking safety	-% of sidewalk coverage (0) -intersection frequency (0) -public transportation access (0) -number of commercial establishments (+) -number of select establishments (+) -distance to the nearest park (-) *Leisure walking* No associations *Weekly walking time (within quarter- and half-mile radii)* -% of high-volume streets (+) -% of medium-volume streets (0) -% of low-volume streets (-) -% of sidewalk coverage (0) -intersection frequency (0) -public transportation access (0) -number of commercial establishments (+) -number of select establishments (+) -distance to nearest park (0) *B. Multilevel logistic regression (walkers vs non-walkers)* -no associations *<u>Subjective</u>* *Multilevel linear regression* *Brisk walking* -poverty (0) -perceived problems (0) -perceived walking safety (0)	-analysis controlled for individual- and neighborhood-level covariates -unadjusted analysis is available for total walking only. Result remain the same, except for n° of bus lines at half-mile buffer (+ related to total walking)

							Leisure walking -poverty (-) -perceived problems (-) -perceived walking safety (0) *Weekly walking time* -poverty (-) -perceived problems (-) -perceived walking safety (0)	
Patterson et al (2004)	-n= 133 -100% F -100% living alone	-clusters: purposeful -individuals: all individuals in 5 census tracts and ad random in 1 census tract -r.r.= 36%	-6 census tracts in Portland Oregon	CS	*Subjective* -walking to services -recreational walking	*Objective (audit)* -new urbanism index*	*<u>Hierarhical regression models</u>* *Walking to services* -new urbanism index (+) *Recreational walking* -new urbanism index (0)	*this index includes the presence of a variety of characteristics: sidewalks, streets in a grid pattern, narrow streets, short blocks, houses set close to the street, street trees, garages not at the front, front porches, a central civic space, facilities for a mix of uses, varied housing types and transit stop.
Piro et al (2006)	-n= 3499 -age= 75-76 y -20.3% college / university education -57.0% F	-clusters: not reported -individuals: not reported -r.r.= 53.2%	-Oslo (Norway)	CS	*Subjective* Less than 1 hour PA a week vs more than 1 hour PA a week	*Objective* -neighborhood violence *Subjective* -self perceived safety	*<u>Multilevel logistic regression</u>* *All participants* -neighborhood violence (-) -self perceived safety (+) *women* -neighborhood violence (0) -self perceived safety (+) *men* -neighborhood violence (-) -self perceived safety (+) *<u>Multilevel logistic regression controlled for socioeconomic and medical conditions</u>* *All participants* -neighborhood violence (-) -self perceived safety (+)	-Neighborhood violence was measured at the level of administrative boroughs -PA question: "What kind of physical activity have you undertaken in the course of the past year? Estimate a weekly average for the year (light exercise, you do not sweat or feel out of breath)". This question has not been validated. -Perceived safety was measured by 1 question: "Would you feel safe walking alone in your neighborhood in the evening?" Psychometrics were not reported.

							women -neighborhood violence (0) -self perceived safety (+) *men* -neighborhood violence (-) -self perceived safety (0)	
Plotnikoff et al (2004)	-n= 2,535 *Total sample** -49.7% F -32.9% completed post secondary education	-clusters: purposeful -individuals: random	-Ontario (Canada)	CS	*Subjective* Recreational PA (METS)**	*Objective* Urban vs rural	*Stepwise regression procedures* Urban vs rural (0)	*total sample also included younger subjects **questionnaire used was based upon another validated questionnaire
Shigematsu et al (2009)	*Age 66-75* -n= 201 -age= 70.1 ± 3.0 y -46.8% F -BMI= 26.7± 4.6 -84.5% white -31.3% completed college or university *Age 76+* -n= 159 -age= 81.1 ± 4.5 y -56.6 % F -BMI= 25.4 ± 4.7 -84.9% white -26.4% completed college or	-clusters: purposeful -individuals: random -r.r.= 23.0%	-King County / Seattle, Washington (USA)	CS	*Subjective* -total minutes of weekly walking for transportation -total minutes of weekly walking for leisure (CHAMPS)	*Subjective* -Residential density -land use mix-diversity -land use mix-access -street connectivity -walking/cycling facilities -neighborhood esthetics -pedestrian/traffic safety -safety from crime -recreational facilities near home -park near home	*Partial correlations controlled for sex, BMI, education, income and driver's licence* *Age 66-75* *Transportation walking* -Residential density (+) -land use mix-diversity (+) -land use mix-access (+) -street connectivity (0) -walking/cycling facilities (+) -neighborhood esthetics (0) -pedestrian/traffic safety (0) -safety from crime (0) -recreational facilities near home (+) -park near home (0) *Leisure walking* -Residential density (0) -land use mix-diversity (+) -land use mix-access (+) -street connectivity (0) -walking/cycling facilities (0) -neighborhood esthetics (0)	-study focusing on differences in environmental correlates between age groups (20-39, 40-49, 50-65, 66-75 and 76+) (NQLS-A, SNQLS). -to recruit subjects from areas with a wide range of walkability, GIS was used to determine walkability from all census block groups in King County / Seattle. Participants were recruited from areas differing in walkability and household income. -for the age group 20-39y all 8 news subscale scores were sign. correlated, but the highest correlations were seen in the 2 oldest groups (r> 0.35).

	university						-pedestrian/traffic safety (0) -safety from crime (0) -recreational facilities near home (0) -park near home (0) *Age 76+* *Transportation walking* -Residential density (0) -land use mix-diversity (+) -land use mix-access (+) -street connectivity (0) -walking/cycling facilities (0) -neighborhood esthetics (0) -pedestrian/traffic safety (0) -safety from crime (0) -recreational facilities near home (+) -park near home (+) *Leisure walking* -Residential density (0) -land use mix-diversity (0) -land use mix-access (0) -street connectivity (0) -walking/cycling facilities (0) -neighborhood esthetics (0) -pedestrian/traffic safety (0) -safety from crime (0) -recreational facilities near home (0) -park near home (0)	

Shores et al (2009)	-n= 448 -≥ 65 y -46.8% F - predominantly white -60.6% overweight	-clusters: not reported -individuals: random -r.r.= 38.0%	-North Carolina (USA). -Mountainous, low dense, rural region	CS	*Subjective* Approaching recommended amount of PA (5 times 20 min. MPA or 3 times 20 min. VPA / week)	*Subjective* -access to parks -access to recreation facilities -access to transportation -safety in the recreation areas -walkability (section H of the NEWS)	*ANCOVA (covariates: age, sex, BMI, income)* -access to parks (+) -access to recreation facilities (+) -safety in the recreation areas (+) -access to transportation (0) -walkability (0) *Logistic regression* -access to recreation facilities (+) -safety in the recreation areas (+) -access to parks (0) -access to transportation (0) -walkability (0)	-data used rely on single-item measures with unknown psychometrics -correlates (incl. social support) explained 25.3% of the variance in approaching recommended amount of PA
Su et al (2009)	-n=4,186 (4,513 shopping trips) -age ≥ 65y -% F not reported	-clusters: not reported -individuals: not reported -data from London Area Travel Survey	-The Greater London Authority and some neighboring districts	CS	*Subjective* Mode choice for shopping trips (one-day travel diary): -drive + walk -walk + drive -passenger + walk -walk + passenger -walk -public transport + walk -walk + public transport	*Objective* -household location (inner city London vs outer regions) -bus service headway (waiting time between 2 buses arriving at the same bus stop) -bus stops density -rail stops density	*Nested logit modeling** -household location (-) for all dependent variables** -bus service headway (+) -bus stops density (+) -rail stops density (0) (only calculated for public transport + walk and walk + public transport)	-drive + walk= drive to shop and walking back from shop… -measurement of independent variables at the level of post codes *reference category= driving (a negative association means that with an increase in the independent variable the dependent variable will be used less compared to driving) **more driving in inner city (thus less walking + combinations with walking)

Sugiyama et al (2007)	-n= 271 -age ≥ 65 (45% ≥ 75) -57.8% F -91% white -26% finished education after 16	-clusters: purposeful -individuals (3 strategies): random (n= 194, r.r.= 10%) , purposeful and convenience*	Great Britain	CS	*Subjective* -meeting PA recommendations (2.5 h recreational + transportation walking/week)	*Subjective* -urban vs rural	*Chi-square* -urban vs rural (0)	-questionnaire for walking asked for the frequency and duration in a typical Summer and Winter month. Questionnaire was similar to IPAQ, but psychometrics are not reported. -low r.r.: questionnaire may have been sent to people younger than 65 *-13private & public organizations providing sheltered housing distributed questionnaires (n= 102) -2 translated session to obtain subjects from ethnic minorities (n=22)
Sugiyama et al (2009)	-idem Sugiyama et al (2007)	-idem Sugiyama et al (2007) -total r.r.= 14%	Great Britain	CS	*Subjective* -meeting PA recommendations (2.5 h recreational + transportation walking/week)	*Subjective* -pleasant NOS -good paths to NOS -safety in NOS -nuisance in NOS -distance to NOS	*Logistic regression controlled for age, education and functional capability* -pleasant NOS (0) -good paths to NOS (+) -safety in NOS (0) -nuisance in NOS (0) -distance to NOS (0)	-NOS= neighborhood open spaces, a broad definition of NOS was provided in the questionnaire. -independent variables were measured by a scale consisting of 14 items (reduced to the 4 dimensions) and the response format was a 5-point Likert scale. Distance to NOS was measured separately by asking the time + normal means to get to NOS. Questionnaire was similar to previous used questionnaires and based upon 8 focus group interviews, but psychometrics were not reported. -also see Sugiyama et al (2007)

Tucker-Seeley et al (2009)	-n= 18,370 -mean age= 65 y [50 – 108] -54.05% F -85.65% white -39,91% high household income	-clusters: convenience -individuals: purposeful -r.r.= 88.0%	USA	CS	*Subjective* Index of LTPA	*Subjective* -neighborhood safety	*<u>Weighted regression models</u>* *Controlled for demographics, SES and functional limitations* -neighborhood safety (+) *Also controlled for self-rated health* -neighborhood safety (0)	-LTPA and neighborhood safety (single question) was measured by a tool with unknown psychometrics
Wilcox et al (2000)	-n= 812* -age ≥ 60 (41.2% ≥ 70) -100% F	-cluster: purposeful** -individuals: random -r.r. (total sample)= 87.3%	USA	CS	*Subjective* -LTPA: categorized as sedentary, underactive and active	*Objective* -rural vs urban	*Chi-square* -urban vs rural (0)	*total study sample consisted of 2338 women ≥ 40y (25.6% white) **zip codes with 20% or more of each of the following racial/ethnic categories: African American, American Indian/Alaskan Native and Hispanic + group of white women was also surveyed -PA questionnaire was based upon items adapted from existing questionnaires, psychometrics were not reported. -sedentary was defined as no reported sports or exercise in the past two weeks, or no increase in heart rate reported from any activities engaged in. -active was define as either: (a) 3 or more sessions per week of jogging/running, hiking, biking, swimming or dance, for at least 20 minutes per session, resulting in a medium to large increase in reported heart rate (b) five or more sessions per week, for at least 30 minutes per session, of any physical activities that resulted in at least some reported increase in heart rate -Independent variables were measured at the level of zip codes

Wilcox et al (2003)	-n= 102 -mean age= 70.6 ± 9.2y -100% F -41% African American	-clusters: purposeful -individuals: convenience	-Fairfield County, South Carolina, USA -rural area	-CS	*Subjective* -total PA (PASE)	*Subjective** -neighborhood safety -motorized traffic -street lighting -unattended dogs -park in walking distance -sidewalks in immediate neighborhood	*Bivariate: Pearson correlation coeff.* -neighborhood safety (+) -motorized traffic (-) -street lighting (0) -unattended dogs (0) -park in walking distance (0) -sidewalks in immediate neighborhood (-) *Multivariate: regression analysis* -neighborhood safety (+) -motorized traffic (-) -street lighting (0) -unattended dogs (0) -park in walking distance (0) -sidewalks in immediate neighborhood (-)** *Multivariate: regression analysis (trimmed to model)* -neighborhood safety (+) -motorized traffic (0) -street lighting (0) -unattended dogs (0) -park in walking distance (0) -sidewalks in immediate neighborhood (-)	-participants are recruited through health care centers, congregate meal sites, civic organizations and an Afr. Am. church. -no significant interaction effects race – independent variables were found -regression analyses: controlling for confounding factors was not reported *questionnaire based upon previous studies. Face validity and test-retest reliability were tested in these studies. **These 3 sign. factors explained 9.4% of the variance in total PA

Abbreviations

F= female

M= male

r.r. = response rate

CS= cross-sectional

L= longitudinal

PA= physical activity

MPA= moderate physical activity

MVPA= moderate-to-vigorous physical activity

LTPA= leisure-time physical activity