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Abstract

Rationale: A growing body of research suggests that urban design has an effect on health and well-being. There have been very few studies to date, however, that compare these effects across the lifespan.

Objective: The current study examines the direct and indirect effects of the city environment on happiness. It was hypothesised that citizens' ratings of their city along dimensions of *performance* (e.g., basic – usually government – services related to education, healthcare, social services, and policing) and *place* (e.g., the beauty of the city and a built environment that provides access to cultural, sport, park, transport, and shopping amenities) would be significant predictors of happiness but the nature of these effects might change over the lifespan.

Methods: 5,000 adults aged 25-85 years old living in Berlin, Paris, London, New York, and Toronto completed the Quality of Life Survey in 2007. Respondents reported their happiness levels and evaluated their city along *place* and *performance* dimensions.

Results: The results of the study demonstrate an interesting, and complex relationship between the city environment and happiness of residents across the lifespan. Findings suggest that the happiness of younger residents is a function of having easy access to cultural, shopping, transport, parks and sport amenities and the attractiveness of their cities (i.e. place variables). The happiness of older residents is associated more with the provision of quality governmental services (i.e., performance variables). Place and performance variables also have an effect on health and social connections, which are strongly linked to happiness for all residents.

Conclusion: Younger adults' happiness is more strongly related to the *accessibility of amenities* that add to the quality of a city's cultural and place characteristics; older adults' happiness is more strongly related to the *quality of services* provided within a city that enable residents to age in place. These results indicate that, in order to be all things to all people, cities should emphasize quality services (e.g., good policing, schools, healthcare access), beauty and character, and provide easy access to transport amenities and cultural and recreational opportunities.

Keywords: built environment; urban design; aging; lifespan development; quality of life; place-making; well-being; happiness; social connections; public policy

Introduction

Life choices and environmental contexts play a profound role in the process of adult development and aging. Both how and where we live matter. In their pioneering study, Lawton and Nahemow (1973) proposed an ecological theory which conceptualized aging well as involving a Person-Environment interchange dynamic that is profoundly influenced by the physical (or built) environment. However, over four decades later the influence of key elements of the immediate physical environment on well-being over the lifespan, including aspects of the city environment, remains largely uninvestigated (Wahl, Iwarsson & Oswald, 2012). The lack of attention to the city environment in theories of aging may be explained by a predominant focus on the social environment in mainstream psychological thinking (Wahl et al., 2012). Put simply, more work is needed to understand how different aspects of the environment impact happiness across the lifespan. In the current study we examine the influence of city environment on the self-reported happiness of younger and older adults. We are particularly interested in whether the city as a *place* and the *performance* of services within cities contributes to (or detracts from) residents' happiness.

Past research highlights a desire amongst older adults to "age in place," that is, to live in a location of their choice and thus retain continuity and control over important aspects of daily life. Older adults often face challenges in their communities, especially in modern car-dependent suburbs which require a privately-owned vehicle. (Duany, Plater-Zyberk & Speck, 2000; Leyden, 2003). For aging in place to be feasible, consideration needs to be given to transportation, recreational and cultural opportunities, and amenities that facilitate physical activity, social interaction, access to destinations, and on-going educational opportunities (Lui, Everingham, Warburton, Cuthill, & Bartlett, 2009). Older adults are empowered by places that facilitate physical accessibility, mobility, independence, emotional attachment, and social participation (Frumkin, Frank, & Jackson, 2004; Rosso, Auchincloss, & Michael, 2011; Wahl et al., 2012).

There has also been growing attention on the lifestyle preferences of younger adults. Recent research provides important clues to explain why *place* is uniquely important for young city residents. Richard Florida (2005, 2010), for example, demonstrates that talented, highly educated, and creative people, representing a wide range of professions and areas of expertise, tend to cluster together in today's modern cities. Not surprisingly city leaders and businesses in the world's most dynamic cities go to great lengths to attract young, highly educated new residents. This is often accomplished by facilitating a better sense of place that includes vibrant urban neighborhoods with easy access to cafes, green spaces, public transportation, sport and cultural amenities and nightlife.

Efforts of cities to attract highly educated residents are based upon understanding their preferences. The American Planning Association (2014), for example, found that Millennials (i.e., 21–34 year olds) are particularly concerned about the quality of life in their cities. It found 74% believe the best way to grow the local economy is to "invest in local

schools, transportation choices, walkable areas, and making the area as attractive as possible" in comparison to the 26% who believed that recruiting new companies to the city is preferable (p. 21). The quality of place appears to matter to younger city residents. Knowing this is important because attracting such young people contributes to a city's economic vitality.

A recent line of empirical work by Leyden, Goldberg and colleagues on the relationship between the city environment and happiness of residents highlights an important distinction between the role of what they label as *place* and *performance* variables (Goldberg, Leyden and Scotto, 2012; Leyden, Goldberg, and Michelbach, 2011). *Place* indicators include residents' ratings of how beautiful their city is, how proud they are to live there, how easy it is to access shops, cultural and sport amenities and parks and green spaces, and the convenience of public transportation. These place variables are a function of a built environment that enables access to amenities and allows city residents to attain their daily needs and enjoy their lives within cities. In fact, a city's beauty, or its parks, or shops, or theatres, cafes, and its public transportation network are all amenities in a sense. If they are of high quality they are enjoyed by resident and visitor alike and add to the attractiveness of being in the city. Collectively they add to the choices the city has to offer. And such choices are of great importance to city living because they can accommodate the diversity of residents' preferences and because they enable social interactions. For example, a recent study found that access to a quality public transit system can reduce risks associated with depression and other mental health disorders because people can better take advantage of the amenities a city offers and be more socially connected (Melis, Gelormino, Marra, Ferracin, & Costa , 2015). Also, the availability of sports opportunities and cultural assets like museums directly affects the sense of pride residents have towards their city (Swindell & Rosentraub, 1998).

Performance variables include residents' ratings of the city in providing basic services such as good schools, healthcare opportunities, safety from crime, and facilities serving the disabled, elderly, poor, and socially disadvantaged. These variables are distinguishable from *place* indicators in that they characterize the availability and quality of *services offered* within cities that promote the general welfare of residents. Whereas place variables are more about the luxury of choice and enhancing the cultural opportunities or pleasantness of the city, performance variables are far more about providing for basic or fundamental needs. We choose to go to a concert hall, café, or a park or a shop or this or that tram or subway station and having more of these adds to our choices and the attractiveness of city living. Performance variables are more about services that we need and do not necessarily want to choose. In fact they often reflect the frailties of life: becoming ill, being a child, being disabled and becoming elderly. We generally do not choose to go to the hospital or a facility for the poor or to feel unsafe from crime. To be sure, *place* and *performance* variables correlate with each other; however, the authors view them as unique concepts. Goldberg and colleagues(2012) employed a confirmatory factor analysis (CFA) to establish the validity of the *place* and *performance* latent variables.

Using structural equation modelling (SEM), Goldberg and colleagues(2012) found that the individual happiness of city residents was significantly, independently and positively associated with their ratings of both *place* and *performance* variables. Furthermore, *place* and *performance* variables not only had a direct effect on resident happiness, there were also indirect effects as mediated by more traditional factors found to predict happiness (Layard, 2005).

For example, higher *place* ratings were associated with higher ratings of self-perceived health, which in turn was a significant predictor of happiness. This is an important finding given that the built environment of cities, the amenities offered within them, and the

convenience of public transportation is the result of human decision-making, rather than chance. Again, the health of residents is *directly and significantly* influenced by decisions that create, design, and maintain the built environment of cities.

The findings by Goldberg and colleagues (2012) add to a burgeoning line of research linking a host of health outcomes to characteristics of the built environment (e.g., Carlson, Aytur, Gardner & Rogers, 2012; Doyle, Kelly-Schwartz, Schlossberg, & Stockard, 2006; Frumkin et al., 2004; Giles-Corti et al., 2013; Kawachi & Berkman, 2003; Maas et al., 2009; Northridge, Sclar, & Biswas, 2003; Saelens, Sallis, & Frank, 2003; Yu, Sessions, Fu, & Wall, 2015). Frank, Andersen, and Schmid (2004), for example, found that cities that provide a high degree of mixed land-use (allowing residential, commercial, office and institutional buildings to co-exist within a common geographic area) have lower obesity rates among residents. This type of land use planning affords destination walking opportunities. Similarly, Sturm and Cohen (2004) compared the built environment within 38 different metropolitan areas in the United States based on various dimensions of sprawl (i.e., the degree to which places were dominated by low density, predominantly single-use developments that spread outside of an urban core). They found that people living in places characterized as sprawl are more likely to self-report the existence of respiratory conditions, chronic headaches, and arthritis even after controlling for other factors that predict such medical issues.

As a result of this growing body of evidence linking the built environment and planning decisions to healthy outcomes, the U.S. Center for Disease Control and Prevention and the Office of the Surgeon General have called for more access to public transportation, support for mixed-use development, a better infrastructure for walking and biking, and locating schools within walking distance to residential areas (Office of the Surgeon General, 2010). For the purposes of the current research, we are primarily interested in the

relationship between *place* and *performance* variables on happiness across the lifespan. We include self-perceived health, however, in our model because it is strongly connected to happiness and because it has been found to be influenced by urban design and planning decisions.

The built environment of cities may also provide residents with the kind of social opportunities that can facilitate improved social capital (Leyden, 2003) and reduce social isolation (Brown et al., 2008). In Goldberg and colleagues (2012), the relationship between *place* and happiness was mediated by the level of connectedness people felt towards others and the belief that their cities provide many opportunities for volunteer activities, two key measures of social capital that have been linked to happiness in previous research (Helliwell & Putnam, 2005; Putnam, 2000). *Performance* variables also had an indirect effect on happiness through self-perceived health and 'social health' (i.e., measured by connectedness and volunteering). In other words, residents who were satisfied with the *performance* of their cities in terms of key services were also more likely to feel healthy and connected to others, which are important predictors of happiness.

The distinction between *place* and *performance* variables in Goldberg and colleagues (2012) resonates with the view of Wahl and Oswald (2010) that both experience-driven belonging and behavior-driven agency are important aspects of Person-Environment inter-changes as people age. *Place* variables such as "my city is beautiful" and "I am proud of my city" may align with a sense of belonging that reflects a sense of positive connection with the environment and other people, whereas *performance* variables may align with a sense of agency that implies greater independence and proactive behaviours that can be supported by a city environment that provides quality basic services to citizens. Notably, processes associated with belonging, attachment and identity have been used to explain subjective evaluations of place, including personal satisfaction with home and geographic location and

the formation of psychological and social bonds to the immediate environment (Wahl et al., 2012). The provision of quality government services can assist with age-related physical and cognitive decline and enable the types of independence that are critical for the health and well-being of older adults (Lawton, 1982; Marquet & Miralles-Guasch, 2015; Oswald, Wahl, Schilling, & Iwarsson, 2007).

The current study extends the line of research by Leyden and colleagues (2011) and Goldberg and colleagues (2012) to examine the relative impact of *place* and *performance* variables on the happiness of adults in different age-groups. Although Leyden and Goldberg and their colleagues found that both *place* and *performance* variables accounted for variance in happiness ratings in the adult population *as a whole*, one question that has not yet been addressed in the literature is *how do place and performance variables affect the happiness of city residents over the lifespan?*

We believe this inquiry can provide insights for several academic disciplines. For example, the psychology and aging literature has predominately focused on social environments, and has yet to address the influence of *the city as an environmental characteristic* in the ecology of aging. And the urban planning, public health, and public policy literatures have started to establish important links between urban design, well-being, and health (e.g., see Jackson, Dannenberg, & Frumkin, 2013), but provide few empirical insights about how these relationships vary for people at different stages in their lives.

This study is the first – to our knowledge – that examines the relative influence of *place* and *performance* ratings of cities on the happiness of adults across age groups. On the basis of the available literature, we hypothesised that both *place* and *performance* variables would, all things being equal, be important for the happiness of city residents. However, given that old age is characterised by decreasing functional capacity and increasing resource

demands to remain independent, we also hypothesised that, within the older adult group, *performance* variables would account for more variance in happiness than *place* factors. Likewise, given that younger adults appear in recent studies to value a vibrant cultural and urban scene, we hypothesise that the happiness of younger adults may depend more on the availability of quality *place* indicators.

Consistent with the approach taken by Leyden, Goldberg and colleagues, when examining the impact of *place* and *performance* variables on happiness levels we controlled for a variety of other factors known to affect happiness (Bruni & Porta, 2007; Frey & Stutzer, 2002; Helliwell & Putnam, 2005; Layard, 2005; Martikainen, 2009). Specifically, we controlled for relative income, self-rated health status, satisfaction with family relationships, employment or work status, and relations with community and friends.

Finally, because the effects of these variables on happiness may vary by age, we tested effects across four age-groups. We used multi-group SEM to examine differences in both the direct and indirect effects of *place* and *performance* latent variables on happiness when each age-group was compared. We adopted a two-step approach to modeling, first working to establish the level of invariance in our latent variables of *place* and *performance* across four age-group and five cities, and second, testing for age-group differences in our structural model (see Figure 1).

Figure 1

Method

Participants

Participants of this study completed the Quality of Life Survey (QLS; http://bit.ly/1WtYguS) in 2007 conducted for the Global Metropolitan Forum of Seoul held in January 2008 (see Leyden et al., 2011; Goldberg et al., 2012), both of which were supported by The National Academy of Sciences (Republic of Korea), the Seoul Metropolitan Government, and the Seoul Welfare Foundation. Phone interviews were completed by a random sample of 1,000 adult residents living in each of the following five cities: Berlin, London, New York, Paris, and Toronto. Stratified Random Sampling with proportional allocation across Sex and Age was used in the collection of data. Survey questions provided respondents opportunities to make self-assessments of their happiness, health, and social connections. Further, questions sought evaluations of different aspects of the cities in which respondents reside. For our analysis, survey respondents were categorized into the following four groups: young (aged 25–34 years; $N = 1,286$), young middle aged (aged 35–49 years; $N = 1,960$), older middle aged (aged 50–64 years; $N = 953$), and older adults (aged 65–85; $N = 685$ years).

Measures

The primary dependent variable in this research is individual happiness. Respondents were asked "How happy are you now?" with a 5 point Likert scale ranging from "Very Happy (5)" to "Not Happy at All (1)". The primary independent variables are residents' ratings of their cities along dimensions of *performance* and *place* indicators. For each *performance* and *place* indicator, as provided in Table 1 below, respondents were given a

choice of Strongly Agree (5), Agree (4), Neither Agree nor Disagree (3), Disagree (2), or Strongly Disagree (1).

Based on previous research, we controlled for the effects of income and marriage in the analysis of city performance and place effects on happiness (Layard, 2005; Goldberg et al., 2012). Other predictors of happiness, as drawn from previous research, that are included in this study are self-reported health ("How is your health in general?"), feeling socially connected to others ("I feel connected to the people who live in my neighbourhood"), trust in government ("I can trust what my city government does"), volunteer opportunities ("There are many opportunities for volunteer activities in my city"), and employment opportunities ("There are plenty of job opportunities in my city"; see Figure 1). As with the *place* and *performance* variables, each item is measured using a 5 point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1).

Statistical Analysis

We used CFA to evaluate our measurement model, and multi-group SEM to evaluate our causal hypotheses. A confirmatory factor model was specified and estimated using AMOS 20 (IBM, 2011) with model parameters estimated using maximum likelihood estimation. We first sought to confirm the two-factor *place and performance* measurement model identified by Leyden and Goldberg and colleagues (2011 and 2012) across four age-groups and five cities, separately. Subsequently, multiple group analyses were used to assess the factor structure and structural relations of the model across age groups. Following guidelines from Byrne (2010) the adequacy of the fit between the specified model and the observed data (i.e., model fit) was evaluated using a number of criteria. The first criterion was the chi-square statistic (statistical non-significance suggests good model fit to data). However, caution is advised when interpreting the chi-square fit statistic due to its

sensitivity to sample size. Therefore, additional fit indices are also employed: Absolute fit was assessed using the Root Mean Square Error of Approximation (*RMSEA*) with 90% confidence intervals (90% *CI*); incremental fit indices, namely the comparative fit index (*CFI*) and the Tucker-Lewis Index (*TLI*) were also used. Rigorous thresholds were used to assess model fit: *RMSEA* ≤ .08, *CFI* and *TLI* ≥ .90 reflect adequate fit, while *RMSEA* ≤ .06, *CFI* ≥ .95 indicate excellent fit (Byrne, 2010).

Tests for invariance of the specified models were conducted using multiple-group analysis to fit a series of hierarchically nested structures. First, configural invariance is assessed by allowing the same set of subscales to form a factor in each group while allowing all model parameters to be freely estimated. If the configural invariance fits according to the model fit criteria outlined above subsequent tests may be conducted. Second, metric (weak) invariance assesses the factor loadings across groups. Equivalence at the metric level allows the comparison of relationships. Scalar (strong) equivalence between groups is then tested by constraining factor loadings and intercepts to be equal. When both factor loadings and intercepts are invariant (i.e., scalar invariance), mean differences on the higher order latent factor can be tested. Measurement invariance is supported when constrained models do not provide poorer fit as indicated by fit indices (i.e., Δ*CFI*) and the chi-square difference test. The chi-square difference test is deemed inappropriate in isolation, therefore the Δ*CFI* index with a cut-off criterion of <.01 is used (Byrne, 2010). If a significant difference between groups was identified, modification indices and the factor-ratio method (Cheung & Rensvold, 1999) were utilised to identify group differences.

Nominal levels of missing data were observed in the database, ranging from 0-5.70% for key variables in the model. For the SEM, maximum likelihood estimation was used. Research has shown that this method of handling missing data outperforms common methods

such as listwise and pairwise data deletion, mean substitution (Jöreskog & Sorbom, 1993). Therefore maximum likelihood estimation is an appropriate method of handling the missing data in the current study (Arbuckle, 2007).

Results

Means and standard deviations for all variables across the four adult groups are presented in Table 1. Using one-way analysis of variance and correcting for multiple comparisons (i.e., $p < .0125$), mean level differences were found for a number of variables across age groups. For example, on average, the young middle aged group (aged 35–49 years) reported stronger positive *place* ratings compared to the younger age group (25-34 years; $p < .001$). Age differences were also found for average *performance* scores, as the younger cohorts (25-34 and 35-49 years) reported stronger positive performance ratings than the older cohorts (50-64 and 65-85 years; ps $< .0125$). Significant differences were found for health and jobs; younger cohorts (25-34 and 35-49 years) were more likely to feel their health was better or that there were "plenty of job opportunities" than older cohorts (50-64 and 65-85 years; ps $< .05$). Furthermore, age differences were found for connection and volunteering. Younger adults (25-34 years) reported lower connection with people in their neighbourhood than the younger middle age group (35-49 years), and reported fewer volunteering opportunities when compared to older cohorts (50-85 years; ps $< .0125$). Finally, older adults (65-85 years) reported significantly less trust in what their city government does compared to both younger cohorts (25-49 years; ps $< .0125$).

Table 1

Structural Equation Models

Measurement models

A two-factor model was used to assess the dimensional structure of *place* (measured using 6 indicators) and *performance* (measured using 5 indicators; see Table 1). Results indicated good configural and metric invariance across cities (see Table 2). Two place items were found to function differently across cities, namely, "My City is a beautiful city"; and "I have easy access in my city to plenty of shops, supermarkets, and department stores". Allowing these paths to be freely estimated across cities enhanced the fit of the model.

Table 2

Similarly, results indicated good configural, metric, and partial scalar invariance in the two-factor *place and performance* model across age-groups (see Table 3). One place variable performed differently across age-groups (i.e., I feel safe walking around the city at night) and allowing this to be freely estimated improved the fit of the model.

Table 3

Structural Models

The configural (unconstrained) model comparing the four age groups showed a good fit, χ^2 (540) = 1631.27, $p < .001$, *RMSEA* = .02 (90% *CI* = .019-.021), *CFI* = .92, *TLI* = .88.

In order to compare the structural relations among the variables, all relations were constrained across age groups. This model also showed a satisfactory fit, χ^2 (576) = 1747.86, $p < .001$, *RMSEA* = .02 (90% *CI* = .019-.021), *CFI* = .91, *TLI* = .89. Therefore, the meaning of the structural relations was deemed comparable across age groups.

In order to test for age-group differences between corresponding parameters, it is necessary to constrain each parameter to be equal across groups, one at a time (e.g., Mann, Rutstein, & Hancock, 2009). The model χ^2 is then evaluated against the original configural (unconstrained) model using the χ^2 difference test, with a statistically significant difference indicating inequality of corresponding population parameters.

Using this method, a number of pathways were found to differ between age groups (see Table 4). Notably, the direct pathway between *performance* and *happiness* was found to be significant for both the middle aged groups and the older adult group, but not younger adults. Furthermore, there was a statistically significant difference between the young age group and the older middle 50-64 year old age group ($z = 2.74$, $p < .05$) and the older 65–85 year old age group ($z = 2.59$, $p < .05$). The younger middle 35–49 year old age group also showed a significantly smaller effect than both the middle 50-64 year old ($z = 2.25$, $p < .05$) and the older 65–85 year old age group ($z = 2.20$, $p < .05$). This suggests that the influence of the city *performance* variables on *happiness* increases from younger (aged 25–49 years) to older cohorts (aged 50–85 years).

The opposite trend was found when the relationship between *place* and *happiness* was examined. Notably, the direct pathway between *place* and *happiness* was found to be significant for younger adults (25-34 years) and the middle aged 35–49 year old group, but not for the two older cohorts (aged 50–85 years; see Table 4; Figure 2).

Consistent with previous research the relationship between *health* and *happiness* was significant across all four age groups. Furthermore, the relationship between *place* and *health* was also significant across all four age groups. In other words, individual perceptions of place matter for self-reported health. Notably, the standardised total direct and indirect effect (mediated by health) of place on happiness was 0.18 for younger adults, 0.23 for 35–49 year old adults, 0.28 for 50–64 year old adults, and 0.21 for older adults. Interestingly, the effect of *performance* on *health* was significant for all groups other than the older 65–85 year old age group. The total direct and indirect effect (mediated by health) of performance on happiness was 0.14 for younger adults, 0.20 for 35–49 year olds, 0.32 for 50–64 year olds, and 0.26 for older adults.

Discussion

The current study builds upon recent research that examines how citizens' ratings of their cities as *places* and the *performance* of government services within their cities affects happiness. Previous research by Leyden, Goldberg and colleagues (2011 and 2012) had found that both *place* and *performance* variables predicted happiness. Here we investigated these relationships more closely and – most importantly – examined how the nature of these relationships may be affected over the course of the lifespan. We hypothesised that, within the older adult group (aged 65–85 years), ratings of the *performance* of the city would account for more variance in happiness scores than ratings of the city as a place to live, as determined by *place* indicators. We also hypothesised that the happiness of younger residents (aged 25-34 years) would be more affected by place variables than performance variables.

The analysis provides empirical support for past research that linked the city environment to the happiness of residents (Goldberg et al., 2012; Leyden et al., 2011)[. We found that the character and beauty of cities and the accessibility of amenities such as shopping, parks, public transportation, and recreational and cultural activities (i.e., *place*), as well as quality of government services associated with policing, schools and healthcare (i.e., *performance*) influence the individual happiness of city residents. These relationships are also mediated by other factors that have a strong influence on happiness, such as self-reported health, feeling socially connected, and having plenty of job opportunities. *A major contribution of this study, however, is that these findings are not universal and are clearly affected by one's age.*

The happiness of young (25–34 years) and young middle aged (35–49 years) city residents is more about place than performance. Younger city residents are happier – all things being equal – when they have easy access to theatres, museums, concert halls, a variety of shops, convenient public transportation, and parks and sports facilities. Younger adults appear to want options that enable them to experience the city culturally and socially. Feeling proud of their city or that their city is beautiful is also important. This is evidenced by the significant and positive relationship between *place* variables and happiness among residents aged 25 to 49 years of age. Interestingly, and unexpectedly, the city as a *place* does not significantly influence happiness among older city residents (at least not directly). The happiness of city residents under the age of 50 years old is significantly and directly affected by the city as a place; the happiness of older residents is somewhat different.

The perceived quality of government services in the city, as determined by *performance* variables, affects happiness levels of city residents in the young middle aged (35–49 years), and especially the older middle aged (50–64 years), and older adults (65–85

years) groups. Notably, we find statistically significant differences in the effects of *performance* on happiness across groups; as hypothesized, the impact of the *performance* of a city on happiness increases from younger cohorts (aged 25–49 years) to older cohorts (50–85 years). This suggests that as we age we may become less concerned about the choice of amenities and experiences of city living and more concerned with the provision of key basic services, such as safety from crime, good schools, and access to quality healthcare. In addition, older city residents are more concerned with whether their city is a good place to rear and care for children, and the quality of facilities for the socially disadvantaged, the elderly, the disabled, or the poor. The *performance* of city services does not influence happiness among the younger 25–34 year old cohort. In general, the younger a resident the more likely they are to be influenced by *place* variables and the older they are the more likely they are to be influenced by the quality of government services or *performance* variables. And city residents in the young middle age category (35-49 years) are influenced by both.

In a recent review on how *place* can affect happiness, Leyden, Goldberg and colleagues (2011; 2012) argue that cities that focus upon being attractive and liveable may also promote functional independence, social connections, and health and well-being throughout all stages of the lifespan. Good accessible infrastructure that enables walking, public transport and public safety may also facilitate 'aging in place' (Cunningham & Michael, 2004; Phillipson, 2004). What the current study adds is evidence that *performance* - how well governments provide basic services- is also a significant predictor of happiness amongst both middle aged and older adults, and these effects appear to get stronger as people transition from younger to older middle age and old age. All other things considered, *performance* did not emerge as a significant predictor of happiness amongst 25–34 year old adults, and while the direct effect of *performance* on happiness was significant for adults

aged 35–49 years, this direct effect was significantly stronger for adults aged 50–64 years and adults aged 65–85 years. Given the unique challenges of middle adulthood, which often involves managing one's career and possibly balancing career goals with the care of one's children and one's aging parents, it is perhaps unsurprising that ratings of the performance of the city is a significant predictor of happiness for middle aged adults in addition to older adults.

The effect of *place* on happiness was found to be significant for younger adults (25-34 years) and the middle aged (35–49 years) group, but not for older cohorts (50–85 years). This supports recent research findings indicating many young people have distinct preferences regarding where to live. A recent report Dutzik, Inglis, & Baxandall (2014) found that young adults are driving cars less than older adults did a decade ago. More importantly, young adults are driving less not simply because of higher fuel prices or other economic considerations, but because they have a "greater attraction to less driving-intensive lifestyles" than older generations." (p.3). Young adults are open to "downtown living, public transportation and plenty of entertainment options" (Dewan, 2006; p. A1L). This means that to attract younger residents cities must create and maintain high quality, accessible amenities, such as those measured as *place* variables in the current study.

Consistent with the findings of Goldberg and colleagues (2012) we found that both *place* and *performance* variables also had an indirect effect on happiness that was mediated by self-perceived health and social connections. In fact, the importance of health is universal. Self-assessed health is found to be significantly and positively associated with happiness for all four age groups. Further, self-assessed health is positively associated with *place* variables for all four age groups, and *performance* variables for all except the older adults.

Both *place* and *performance* may enhance health, independence, and social connections in a variety of ways. For example, cities that have an inviting and vibrant public realm with parks, active sidewalks, and shops and cafes and other local destinations within close proximity to where people live can also promote feelings of connectedness, independence, and encourage physical activities such as walking (Giles-Corti et al., 2013; Jacobs, 1961; Leyden, 2003; Whyte, 2009).

Consistent with the seminal work of Lawton and Nahemow (1973) *performance* of cities may become increasingly important as people age and their functional capacities decline. As ageing occurs one's environment becomes increasingly important in supporting independence, self-efficacy, and well-being. However, in past research there has been a stronger focus on the link between environmental affordances and health status, disability and function, with less research focusing on happiness, government services or the urban environment. The indirect effects of *place* and *performance* on happiness that are mediated by health and social connection in the current study highlight the potential need for continued investigation of the ecology of aging and the development of more complex models linking environmental resources to the happiness and health of older and younger adults.

Focusing on older adults, Wahl and colleagues (2012) note that urban designers should be more aware of the physical challenges that older residents often experience and their continued need to remain socially connected with friends and neighbours. This is particularly important for older adults living in car-dependent suburbs who can become socially and physically isolated – and highly dependent upon others – once they lose their confidence and competence in driving. Urban planners and developers should be held to a standard that requires they consider the mobility and autonomy of residents across the

lifespan. This implies consulting with citizens in the design of well-being policies and projects at the city level (Hogan et al., 2015).

Limitations

There are several limitations to our findings. As with similar studies using cross-sectional data, we do not untangle some of the more complex causal interactions between many of our variables. For example, although the theoretical model was derived from a sound literature base, little assumption regarding cause and effect can be made. Further longitudinal, prospective and intervention research is needed to establish causal relationships in this area. It must also be acknowledged that the SEM models specified are approximations, and that variables (e.g., individual or neighbourhood) implicated in the structural processes of the model may be omitted. For instance, considerable variation may be found in each of the cities at the neighbourhood level in terms of the diverse experiences people have of their city, leading to people from the same city expressing distinctly different attitudes. Unfortunately, the current data do not allow us to examine differences across neighbourhoods *within* each of the participating cities. Therefore future research may assess the important effects of neighbourhood and individual variations on attitudes towards place and performance of a city.

Conclusion

Our findings suggest that the way a city is planned, maintained and administrated has an effect on the happiness of city residents. These effects depend in part on the age of residents, however. The happiness of younger city residents is more likely to be affected by *place* variables whereas the happiness of older city residents is more affected by *performance* variables. Younger city residents are happier when they have easy access to cultural

destinations, parks, a variety of shops, convenient public transportation, and sports facilities, and when they feel proud of their city and feel it is beautiful.

While remaining relevant, place variables become less important for happiness the older we become. Instead the happiness of older adults is more affected by the perceived quality of government services in the city. Older city residents are more concerned with the provision of key basic services, such as safety from crime, good schools, and access to quality healthcare or care for children, the socially disadvantaged, the elderly, the disabled, or the poor.

Our findings indicate that city planning and policy decisions play a key role in the happiness of city residents and the manner in which *place* and *performance* variables matter changes over the lifespan. The ability of cities to offer functional and recreational amenities and provide meaningful services that people value not only directly affects happiness, it is also significantly associated with other factors important to happiness such as health and social connectedness. These findings come at a time when most cities around the world are projected to experience exponential growth (United Nations, 2015) and world leaders are increasingly using measurements of well-being to evaluate their culture and society (Stiglitz, Sen, & Fitoussi, 2009). Our work contributes to an emerging understanding that both place-making and policy-making matter for the happiness and health of people living in cities (Cloutier & Pfeiffer, 2015; Corburn 2009; Montgomery, 2013).

The attractiveness or beauty of cities, the convenience of public transportation, and the availability of key cultural, sport and shopping amenities as well as the quality of city services are shared responsibilities among many groups including engineers, planners, architects, developers, business leaders and government policymakers. It is thoughtful human

decision-making, not random chance that determines the success or failure of cities to provide opportunities for residents to have a successful and meaningful quality of life and to age in place. Making good decisions in this context amounts to a good investment in our own future, given that these decisions have a significant impact on the vitality of our cities and our health and happiness over the lifespan.

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Table 1

Means and standard deviations for the four age-groups across all measures included in the study.

Indicator	**Young**		**Young Middle**		**Older Middle**		**Older**		
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	Range
Place	4.07	0.58	4.15	0.61	4.11	0.58	4.11	0.61	1-5
There are many things in my city that I can proudly introduce to visitors	4.12	0.94	4.22	0.88	4.24	0.86	4.16	0.92	1-5
There are many parks and sports facilities in my city	3.79	1.03	3.96	0.97	3.93	0.93	3.95	0.90	1-5
It is convenient to use public transportation (e.g., subways, trains, or buses) in my city.	4.00	1.05	4.00	1.05	4.02	1.04	4.04	0.96	1-5
My city is a beautiful city	4.08	0.89	4.15	0.88	4.12	0.91	4.21	0.86	1-5
I have easy access in my city to plenty of shops, supermarkets, and department stores	4.15	0.95	4.25	0.88	4.08	0.98	4.09	0.94	1-5
My city allows easy access to culture and leisure facilities such as movie theatres, museums and concert halls	4.12	0.96	4.19	0.98	4.17	0.98	4.09	0.98	1-5
Cronbach's Alpha	.66		.74		.68		.77		
Performance	3.45	0.72	3.39	0.74	3.29	0.74	3.26	0.71	1-5
It is easy for children in my city to go to a good school.	3.38	1.10	3.30	1.15	3.24	1.19	3.24	1.13	1-5

My city is a good place to rear and care for children.	3.33	1.17	3.38	1.10	3.35	1.13	3.35	1.13	1-5
It is easy to get good quality healthcare in my city.	3.61	1.10	3.56	1.12	3.47	1.14	3.58	1.09	1-5
My city has many facilities for the socially disadvantaged people such as the old, the handicapped, and the poor.	3.49	1.07	3.33	1.11	3.33	1.16	3.35	1.10	1-5
I feel safe walking around the city at night.	3.26	1.19	3.27	1.23	3.02	1.26	2.64	1.27	1-5
Cronbach's Alpha	.65		.67		.66		.61		
Health	4.19	0.87	4.14	0.90	3.88	0.98	3.75	0.99	1-5
Connection	3.47	1.09	3.63	1.06	3.55	1.12	3.59	1.13	1-5
Volunteering	3.85	0.95	3.94	0.90	3.99	0.87	4.06	0.82	1-5
Trust	2.94	1.16	2.96	1.14	2.91	1.15	2.75	1.13	1-5
Jobs	3.55	1.11	3.57	1.14	3.29	1.15	3.27	1.09	1-5
Happiness	3.99	0.94	4.02	0.93	3.91	1.01	4.06	0.99	1-5

Note: Young = 25-34 years (N = 1,286); Young Middle = 35-49 years (N = 1,960); Older Middle = 50-64 years (N = 953); Older = 65-85 years (N = 685); Total Sample (N = 4,884). M = mean; SD = standard deviation.

Table 2

Configural and metric invariance across five cities

Model		χ^2	*df*	$\Delta\ \chi^2$	Δdf	*RMSEA*	*RMSEA* (90% *CI*)	*CFI*
Factorial Invariance Across 5 Cities								
(1)	Configural model	952.85	215	-	-	.026	.024, .028	.92
(2)	Factor loadings invariant	1168.38	251	215.53*	36	.027	.025, .029	.90
(3)	Factors loadings invariant – Release Items 4 + 5	1070.31	243	98.07*	8	.026	.024, .028	.91

Note: RMSEA = Root Mean Squared Error of Approximation; *CFI* = Comparative Fit Index; *CI* = Confidence Interval; *df* = degrees of freedom. * = $p < .001$.

Table 3

Configural, metric, and scalar invariance across four age groups

Model		χ^2	*df*	$\Delta\ \chi^2$	Δdf	*RMSEA*	*RMSEA* (90% *CI*)	*CFI*
Factorial Invariance Across Four Age Groups								
(1)	Configural model	623.30	172	-	-	.023	.021, .025	.94
(2)	Metric invariance (Factor loadings constrained)	688.85	205	65.55*	33	.022	.020, .024	.94
(3)	Scalar Invariance (Factor loadings & intercepts constrained)	960.00	238	271.15*	33	.025	.023, .027	.91
(4)	Partial Scalar Invariance (release intercept v5_1)	824.71	235	135.86*	3	.023	.021, .024	.93

Note. RMSEA = Root Mean Squared Error of Approximation; *CFI* = Comparative Fit Index; *CI* = Confidence Interval; *df* = degrees of freedom. * = $p < .001$.

Table 4 Structural path coefficients across four age groups.

Structural Path	Age Groups (Years)											
	Young (25–34)			**Young Middle (35–49)**			**Older Middle (50–64)**			**Older (65–85)**		
	Est	*SE*	*p*	*Est*	*SE*	*p*	*Est*	*SE*	*p*	*Est*	*SE*	*p*
1. Happiness ← Place	**.24**	**.08**	**.002****	**.13**	**.05**	**.007****	.18	.10	.059	.09	.10	.337
2. Happiness ← Performance	.04	.10	.696	**.15**	**.07**	**.037***	**.45**	**.12**	**<.001*****	**.60**	**.19**	**.002****
3. Health ← Place	**.28**	**.07**	**<.001*****	**.17**	**.05**	**<.001*****	**.31**	**.09**	**<.001*****	**.23**	**.10**	**.018***
4. Health ← Performance	**.15**	**.08**	**.044***	**.27**	**.06**	**<.001*****	**.24**	**.10**	**.015***	.25	.17	.141
5. Connected ← Place	**.23**	**.08**	**.005****	**.28**	**.05**	**<.001*****	**.50**	**.10**	**<.001*****	**.46**	**.11**	**<.001*****
6. Connected ← Perform	**.70**	**.10**	**<.001*****	**.51**	**.07**	**<.001*****	**.24**	**.11**	**.030***	**.46**	**.19**	**.018***
7. Volunteer ← Place	**.67**	**.07**	**<.001*****	**.47**	**.05**	**<.001*****	**.72**	**.08**	**<.001*****	**.52**	**.08**	**<.001*****

8. Volunteer ← Perform	**.20**	**.08**	**.014***	**.20**	**.06**	**<.001*****	.15	.08	.063	**.40**	**.14**	**.004****
9. Trust ← Place	-.17	.09	.062	**-.15**	**.06**	**.015***	-.06	.10	.568	.15	.11	.187
10. Trust ← Performance	**1.06**	**.12**	**<.001*****	**.95**	**.09**	**<.001*****	**.96**	**.14**	**<.001*****	**.89**	**.23**	**<.001*****
11. Jobs ← Place	**.28**	**.08**	**<.001*****	**.43**	**.06**	**<.001*****	.16	.10	.120	.07	.11	.522
12. Jobs ← Performance	**.59**	**.10**	**<.001*****	**.62**	**.08**	**<.001*****	**.59**	**.13**	**<.001*****	**.84**	**.23**	**<.001*****
13. Happiness ← Health	**.26**	**.03**	**<.001*****	**.30**	**.02**	**<.001*****	**.28**	**.03**	**<.001*****	**.35**	**.04**	**<.001*****
14. Happiness ← Connect	**.08**	**.03**	**.001****	.03	.02	.107	.05	.03	.077	.04	.03	.189
15. Happiness ← Volunteering	.04	.03	.225	**.08**	**.02**	**.002****	.07	.04	.113	-.01	.05	.893
16. Happiness ← Trust	.00	.03	.930	.01	.02	.689	-.01	.03	.857	**-.14**	**.04**	**<.001*****
17. Happiness ← Jobs	-.02	.03	.555	.02	.02	.355	-.01	.03	.758	.04	.04	.306

Note. Est = unstandardised coefficient; *SE* = standardised error. Significance level: *$p < .05$, **$p < .01$, ***$p < .001$. Young: $N = 1{,}286$; Young Middle: $N = 1{,}960$; Older Middle: $N = 953$; Older: $N = 685$; Total Sample: $N = 4{,}884$.

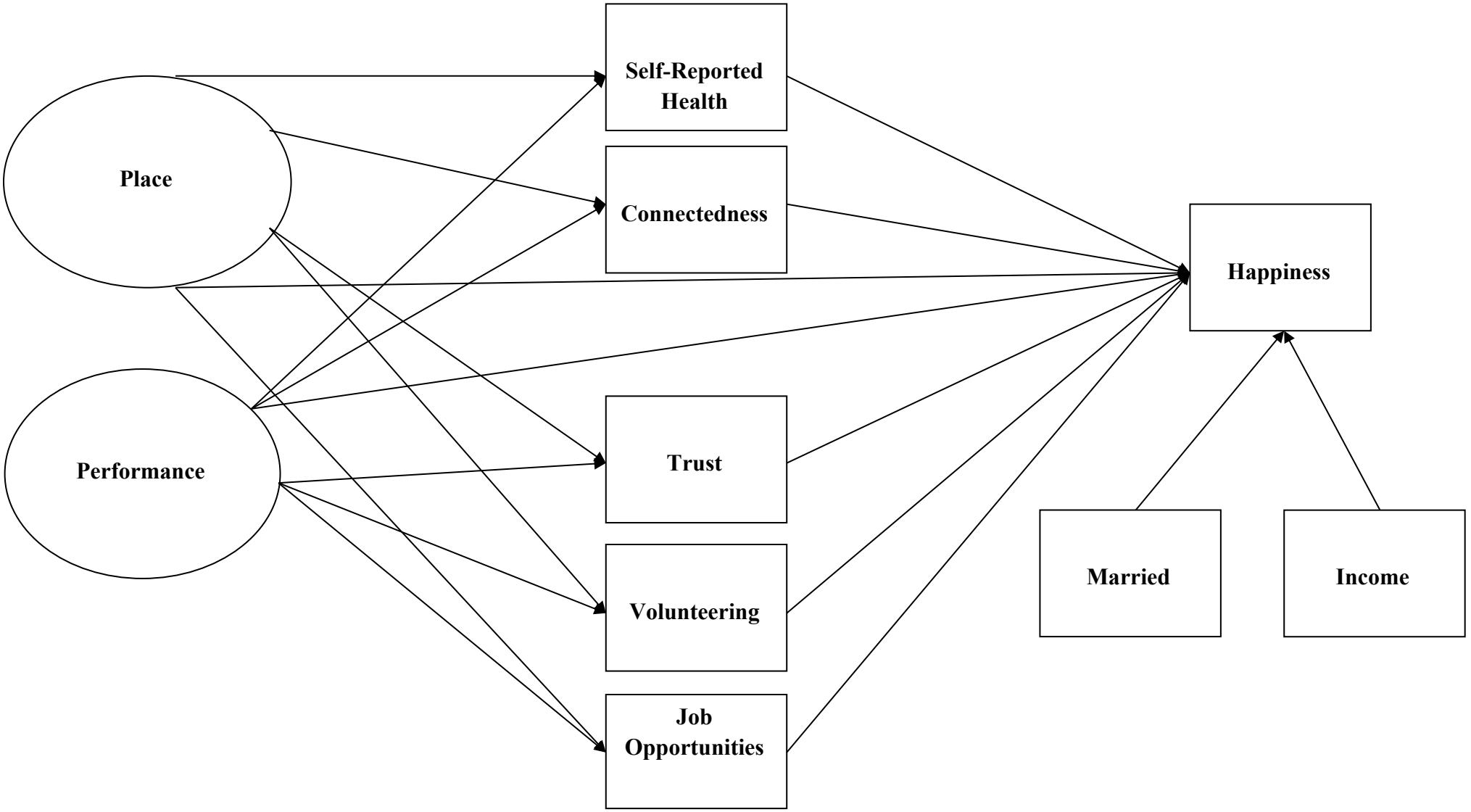

Figure 1. Direct and indirect effects of 'place' and 'performance' latent variables on happiness.

Note: Place and Performance latent variables are exogenous variables with multiple indicators (see Table 4), and are represented here using ovals. Variables in boxes are observed variables, each with one indicator. Arrows from left to right indicate hypothesised paths of influence. The direct effects of Place and Performance latent variables on happiness are evaluated, along with the indirect effects mediated by self-reported health, connectedness, trust, volunteering, and job opportunities. Effects of marriage and income on happiness are also controlled for in the analysis.

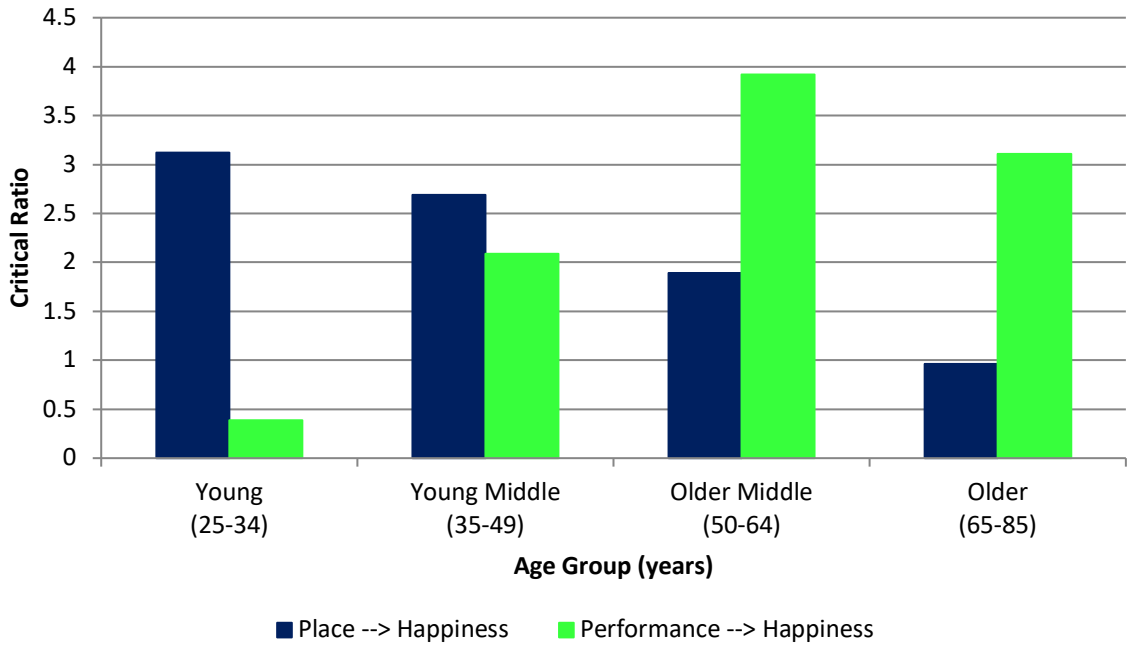

Figure 2. Critical Ratio (*z*-scores) for path coefficients between place, performance and happiness