'It's just one of those natural progressions': stories of relocating between neighbourhoods of high and low walkability

Abstract

Walkable neighbourhood characteristics, such as connectivity and land use mix, have been found to correlate with people walking more and being active. However, the relationship between the built environment and behaviour is highly complex making it difficult to develop generalisable and predictive models. This paper reports qualitative findings from 21 in-depth interviews conducted with urban residents who had relocated between neighbourhoods of high and low walkability. Participants' preferences are reported within key domains (*shop access*, *green space* and *travel links*). These reveal that walkable characteristics were preferred and desired regardless of whether the participant had moved to a high or low walkable area. We contrast surface preferences with an analysis of relocation stories: complex assemblages of biographical narratives, identity work and cultural representations. The findings reveal how neighbourhood types are consistently associated with life stages and that moving to a suburban home was felt to be a definitive type of relocation in which it was acceptable to put neighbourhood preferences aside. Residential self-selection is not yet properly understood and we recommend studies of *relocation stories* for examining the sociocultural meanings that are likely to inform relocation decisions.

(187 Words)

Highlights

- Walkable characteristics were desirable regardless of where participant moved
- Relocations were complex and not reducible to discrete decisions or preferences
- 'Relocation stories' were identified as complex assembles of biography, identity and culture
- Sociocultural associations exist between neighbourhood types and life-stages

Keywords

Walkability; relocation; urban; lifecourse; qualitative

Introduction

The urban environment can have a decisive impact on the behaviours of the people who live there. Access to roads, pathways and public transport links define the possibilities for local people to move around, delimiting their travel behaviour. There is now considerable evidence that making active and sustainable transportation possible and attractive can improve the overall physical activity of residents and reduce car-dependence (Sallis et al., 2016). The International Physical Activity and the Environment Network (IPEN) has published collaborative findings from research across cities worldwide showing how urban characteristics, such as density, public transport and parks, can increase walking and active travel, particularly when there is a concordance of walkable attributes (Cerin et al., 2018; Christiansen et al., 2016; De Bourdeaudhuij et al., 2015; D. Van Dyck et al., 2015). These IPEN articles represent an apex of research into neighbourhood walkability and residents' physical activity. Walkability, understood as a collection of built features that are statistically associated with the propensity to walk (Battista & Manaugh, 2018), is now widely acknowledged as essential for promoting healthier and more sustainable urban habits and as part of a global health strategy (Giles-Corti et al., 2016).

Early walkability research was criticised for an over-reliance on cross-sectional associations to evidence causal relationships (McCormack & Shiell, 2011). There was concern that the correlations between environmental characteristics and residents' behaviour may be due to behavioural *difference* rather than the behaviour *change* (Heath et al., 2006). In this case, association would be due to the movement, or 'sorting', of people and households, referred to as 'residential self-selection' (RSS) (Cao, Mokhtarian, & Handy, 2008; Cao, 2015a; Ettema & Nieuwenhuis, 2017; Krizek, Handy, & Forsyth, 2009; Delfien Van Dyck, Cardon, Deforche, Owen, & De Bourdeaudhuij, 2011). For example, the higher park use of residents living in proximity to public parks may be because of ease of access (walkability) or because people that like to use parks elected to move to that area (RSS). Another pertinent example is whether residents of low-density, residential sprawl are car-dependent out of necessity (walkability) or have come to live there due to a preference for, or acceptance of, car-dependency (RSS). Disentangling walkability from RSS has been, and continues to be, important in evidencing the value of investing in healthy and walkable neighbourhoods. One approach to accounting for RSS was the use of attitudinal questions to measure residents' preferences or attitudes toward travel modes and neighbourhood types, which could then be controlled for in explanatory models. Ewing and Cervero (Ewing & Cervero, 2010) found that statistically controlling for attitudes actually strengthened the association between the built environment and physical activity, which they argued discounted RSS. Similarly, Van Dyck et al. used

attitudinal questions to create an RSS score and found that walkability was related to physical activity even for those residents with high RSS scores (Van Dyck et al., 2011).

These early studies found walkability to correlate with physical activity over and above respondents' attitudes; however, there are conceptual problems with using attitudinal questions to represent RSS. Firstly, attitudinal questions cannot capture the temporality of the opinions expressed, so it is not possible to know whether an expression of attitude is a mediator or outcome of environmental stimulus (Cao, 2015a; Olsen, Macdonald, & Ellaway, 2017). Secondly, attitudes towards a neighbourhood or travel mode cannot be assumed to be representative of the reasons for moving to a neighbourhood or using a mode of travel. As Ettema and Nieuwenhuis point out, a person does not necessarily have to have a positive attitude towards car-use to decide to use their car to pick up the kids and get to work, and travel attitudes are often different from travel reasons (Ettema & Nieuwenhuis, 2017). Thirdly, attitudinal questions oversimplify the complexity of residential movements and behaviour and risk glossing over the interesting and policy-relevant details of why people choose to move between neighbourhoods and in what ways these may influence their habits and activities. For example, residents' attitudes towards their neighbourhood can be affected by property marketing (Nathan, Wood, & Giles-Corti, 2013), childhood experiences (Gustafsson et al., 2013), or – crucially – the amount of time spent in that neighbourhood (De Vos, Ettema, & Witlox, 2018).

Primarily these issues reflect the inadequacy of reducing residential relocation to discrete utilitarian decisions, as the reality of what is being described is complex and varied. More importantly, these complexities and variabilities are pertinent in moving from research to developing health and planning interventions. As IPEN have established international evidence of the relationship between the environment and physical activity, the next task is to look at the contextual detail and complex mechanisms behind these general associations. Increasingly walkability scholars are examining the specifics of *how*, *where*, and *for whom* neighbourhoods are impactful (Feuillet et al., 2016; Minh, Muhajarine, Janus, Brownell, & Guhn, 2017) and whether there are identifiable thresholds of effect (Christiansen et al., 2016). However, understanding residential relocation and travel as more than discrete acts of utility requires reframing them as meaningful and symbolic social practices (Barr & Prillwitz, 2014). Zhang (2014) suggests that we have only 'scratched the surface' in understanding people's life choices and relocation because we have focused on residential choice and travel behaviour rather than on lifestyle. Xiong and Zhang recommend a 'life-oriented' approach that starts by looking at life domains to understand complex life choices (Xiong & Zhang, 2014). Although underused in this area, qualitative research is appropriate for exploring residential relocation and mobility as complex and meaningful social practices (Muggenburg, Busch-Geertsema, & Lanzendorf,

2015). Instead of delineating general associations, qualitative methodologies are intended to provide a deeper understanding by, for example, examining people's use (Clary, Matthew, & Kestens, 2017) or experiences (Reyniers, Houttekier, Cohen, Pasman, & Deliens, 2014) of neighbourhoods.

In this paper, we present findings from a qualitative study conducted as part of a doctoral research project funded by the Economic and Social Research Council. The study looked to understand the relationships between relocation, walkability and walking behaviour in Scotland, using interviews with residents to explore their understanding of how and why they had decided to move to a neighbourhood of high or low walkability.

Materials and Methods

The aim of the qualitative study was to understand residents' reasons for moving into neighbourhoods with differing walkability. Interviews were conducted with residents that had recently (<3 years) relocated to one of three Edinburgh neighbourhoods.

The Case Study Neighbourhoods

Three pre-existing study areas were used from a national study of urban sustainability. City Form was a collaborative project of multiple aspects of city sustainability of which active transport was one dimension (Jenks and Jones, 2009, Woods and Ferguson 2014, Ruman 2020). The Edinburgh case study neighbourhoods were originally selected for the City Form project as they represent a range of centrality, densities, building-use, layout and transport characteristics (Ibid). The 'inner' city area (Dalry) is more central, dense, with mixed building-use, grid layout and highly accessible public transport. The 'outer' city area (Corstorphine) is further from the city centre, has lower densities, with a high proportion of residential building-use, cul-de-sac layout and a single, arterial road bus route. There was also a third 'middle' case study area (Restalrig). These characteristics are outlined the case study boxes below. For the purposes of this study, these case study areas are used as proxies of high and low walkability, and to capture a range of walkability characteristics in the city.

STUDY AREA 1: DALRY

Density: gross density 92.3 and net density 270.5

Land use: 5% of buildings are mixed use, 14% of the area is covered by residential buildings, 11% by residential gardens and 6% by non-residential buildings. 24% is green space

Public transport: mainly buses; 34% residents do not own a car

Layout: compact, with grid and cul-de-sac form

Building: 78% of buildings are between 4 and 6 storeys, 13% have access to a private garden and 73% have access to a shared garden

(Jenks and Jones 2009)

STUDY AREA 2: RERSTALRIG

Density: gross density 37.9 and net density 69.5

Land use: 14% of the area is residential buildings and 31% by residential gardens; 24% is green space

Public transport: mainly buses; 26% residents do not own a car

Layout: predominantly gridded, not orthogonal

Building: 29% of buildings are between 4 and 6 storeys, 56% have access to a private garden; 45% access to a shared garden

(Jenks and Jones 2009)

STUDY AREA 3: CORSTORPHINE

Density: gross density 18.3 and net density 26.6

Land use: 10% of the area is residential buildings and 34% by residential gardens; 38% is green space

Public transport: mainly buses; 9% residents do not own a car

Layout: Compact, with grid and cul-de-sac form

Building: 32% of buildings are single storey and 60% are 2-storey; 88% have access to a private garden; 13% have access to a shared garden.

(Jenks and Jones 2009)

For the purposes of this qualitative study, these case study areas were used to capture a range of walkable characteristics, typical to UK cities. Dalry is a proxy for a more walkable UK neighbourhood while Corstorphine is a proxy for a less walkable UK neighbourhood.

Image 1: Dalry in Edinburgh was used as proxy for highly walkable neighbourhood

Image 2: Corstorphine in Edinburgh was used as a proxy for a less walkable neighbourhood.

Qualitative methods

Recruitment and pilot

Stratified, purposive sampling was used to achieve diversity of participants and allow for information-rich data (Kuper, Reeves, & Levinson, 2008; Ritchie, Lewis, & Elam, 2003). The initial recruitment strategy used the Registry of Scotland (RoS), which is a Scottish-based, public site of registered property sales, to identify addresses that had been sold in the last three years. Letters of invitation were sent to the households as an attempt to reach residents that had recently relocated. Following data extraction and the removal of duplicates, 1,109 addresses were identified. Letters of invitation were sent to these addresses with details of the study and methods of contacting the study team to express an interest in participating. To be eligible, residents needed to have moved property within the last three years, be currently living in one of the three case study areas and be between the ages of 25 and 45. The age criteria was to align with categories in the City Form survey (Jenks and Jones, 2009) as well as the age groups most likely to be relocating. There were no eligibility restrictions on the type of neighbourhood participants had moved from, although this was codified as part of the analysis. We received 50 expressions of interest, of which 26 people were eligible and 21 were interviewed: 10 from Dalry, 5 from Restalrig and 6 from Corstorphine. Five eligible people who expressed an interest could not be contacted for interview.

Three pilot interviews were conducted and listened to by the authors. These informed the design of a semi-structured interview schedule, with a mix of open and closed questions (Green, 2004;

Maxwell, 2012; Ritchie & Lewis, 2003). The topic guide was divided into five areas (*a typical day*, *living in [neighbourhood]*, *living in [previous neighbourhood]*, *being active* and *experiences of physical activity*). The purpose was to encourage detailed accounts of relocating, neighbourhood preferences and use of the local area.

Women are overrepresented in the sample (15/21) and only one participant self-identified as BAME. The sample represented a wide range of socioeconomic backgrounds and household incomes. Four of the participants were unemployed, three of whom relied on social benefit. The highest estimated household income was over £100K and the lowest was less than £20K (mean average of £48K). Additionally, four participants self-identified as disabled and one was wheelchair reliant. Sexuality was not recorded as part of the study.

Data collection

The interview scheduled was informed by the pilot study and structured into section on relocation, use of neighbourhood and physical activity. The first section started with the open question "Can you tell me why you decided to move to [neighbourhood]?" Participants were encouraged to give their own answers. For participants that did not mention transport, green space or access to shops and facilities, this was asked as a prompt: "And how important was access to green space?". For the purposes of this article, the results of these relocation reasons are reported as 'preferences'. The final coding tree for 'preferences' included a long list , examples of which include noise, dog muck, traffic, safety, community, shops, playgrounds, canals and so forth. All participants were asked follow-up prompts about public transport, green space and access to facilities and shops. The 'green space' node included blue space and other natural areas.

All interviews were audio recorded. They were conducted, transcribed, and coded by [Author]; three selected transcripts were double coded by the authors. These were compared and discussed to improve conceptualisation and analytical depth. Extensive notes were made during the interviews and underpinned the interpretations. Following ethical approval from Heriot-Watt ethics committee, electronic recordings were kept in a secure location. All recordings have been subsequently deleted. Data was managed using an NVivo 7 software package. Interviews were conducted face-to-face at a participant's home or at an agreed neutral place. The participants did not know the researcher prior to the interview. They received detailed information about the study and had opportunities to ask questions as part of the consent process. The interviews lasted between 45 and 90 minutes and were either conducted at the participant's home or a neutral public space. All interviews were fully transcribed verbatim and coded by PW.

Coding and analysis

The process of initial (theoretically-informed) coding was kept distinct from the interpretive and relational analysis (Spencer, Ritchie, & O'Connor, 2003: 237). A coding framework developed alongside data collection and was modified as new themes emerged until data saturation was reached. A thematic chart was used to map emerging concepts while retaining participants' own words (Spencer et al., 2003) so they were used within their original context (Legard, Keegan, & Ward, 2003: 229).

These interviews were conducted as part of a doctoral project. The researcher was a doctoral candidate at the time of the study. He is a white male experienced and trained in qualitative data collection and analysis. The ontological underpinnings are postpositivist, social constructionist and critical realist, because sociocultural structures are recognised as having definite and identifiable effects on everyday activities and shape wider changes in the population. The qualitative analysis used multiple different approaches; a narrative analysis is reported in this paper.

Results

Dalry is the case study area that is most central, closest to the city centre and most walkable. Corstorphine is suburban and less walkable. Convenience for daily tasks was commonly given as a motivation for relocating to Dalry and Restalrig, as was 'being close to friends and family'. Most participants said they had been attracted to their neighbourhood because it was green, including those who had moved in to the less green 'inner city', Dalry. Attractions of the home and property, rather than neighbourhood attributes, were more commonly given as reasons for moving to Corstorphine. Although the sample size is insufficient to draw any conclusions from these surface explanations, they were patterned between neighbourhood types. Table 2 summarises the general/ surface reasons given by participants for relocating to their respective neighbourhood.

Table 1: Summary of participants' reasons for relocating by neighbourhood

Case study area	Individual reasons	General attractions
Dalry	*Cohabit with partner, new job, have own place, to buy a home*	*Central, green, shops, walkable, friends and family live nearby*
Restalrig	*New job, settling down. Dislike of previous neighbourhood*	*Central, green, convenient, friends and family live nearby*
Corstorphine	*Married, having children and settling down. Dislike of previous neighbourhood*	*More space, own garden and front door. Green, quiet family neighbourhood*

Before continuing, it is worth addressing the issues of residents' financial means. Participants came from a range of socioeconomic backgrounds recorded as part of data collection. However, it was not the purpose of this qualitative study to examine the relationship between financial means and neighbourhood choice. This would not be the appropriate dataset from which to look at these in any detail. However, we acknowledge that as few people have a perfect choice of where they live (Frumkin, Frank, & Jackson, 2004). During the interviews, many participants referred to some form of trade-off between affordability and desirability.

> "It's kind of neither good nor bad but middle-of-the-road, which I suppose is why I picked it. Because it's middle-of-the-road […] also in terms of cost. Not being able to afford other places."
>
> Peter, 38. Dalry.

These informed the analysis but did not become an explanatory theme in understanding how residents understood their residential relocation.

All participants' accounts of their relocation involved some form of deliberation between *affordability*, *desirability* and *life events*. The findings presented here focus on key themes that emerged from the analysis of residents talking about their relocation. The findings are reported under two sections: *'Neighbourhood Preferences'* and *'Relocation Stories'*. The first section reports residents' individual neighbourhood preferences while the second contrasts these with the broader context of their narrative explanations of why they moved to their neighbourhood.

Neighbourhood Preference

All participants described some form deliberation about where to live based on their circumstances and the type of areas they liked or disliked. In our analysis, 'neighbourhood preference' was any mention of liking or disliking a specific neighbourhood or environmental characteristic, regardless of whether this informed their relocation decision. More than 30 specific preferences (and dis-preferences) were coded and these included things like litter, dog muck, schools, woodland access, shops, friendly atmosphere and so forth. Here we report the three domains that were discussed with all participants: green space, transport and facilities. While this is not exhaustive of all the neighbourhood characteristics they were often discussed and are pertinent to the literature on walkability and self-selection.

Green space

Throughout the interviews, accessible natural spaces such as public parks, woodlands and rivers were repeatedly volunteered as neighbourhood preferences. These were desirable for all

participants. In most cases, green space was discussed as part of the decision about where to relocate. It needed to be accessible but not necessarily on the doorstep.

> *"One big thing when I was considering where to move to was to have some green. I didn't have to have it* immediately *on the doorstep, but it needed to have easy access to [it]. The fact that [the river] is close - you can get there in five minutes. You can get to [public park] in fifteen. So that was big for me that it was close enough to get to green space easily."*

> Kelly, 25. Dalry.

Participants discussed using green space for active travel and leisure. Participants' accounts of enjoying green spaces support the links made with their restorative effects and stress reduction (Bryman & Burgess, 2002; Colley, Brown, & Montarzino, 2016; Nielsen & Hansen, 2007). Interestingly, there was no conclusive difference between the neighbourhood types participants had moved to and their preference for living near green spaces. Participants from all three case study areas expressed a desire for access to green space.

Transport and commuting

Participants from Dalry and Restalrig said that being within walkable distance of their place of work was an important part of their decision about where to relocate. They described more regular local walking in comparison to those who moved to Corstorphine. Participants in Corstorphine reported good public transport links, which is in contrast to other low-walkable neighbourhoods, but corresponds with studies showing that Edinburgh has well-integrated and effective bus transportation (Jenks & Jones, 2009). Whereas public transport was offered as a reason for relocating to a neighbourhood, the desire for car travel was not. Throughout the interviews, participants described a dis-preference for vehicular travel. For residents of Corstorphine, public transport could be a way to avoid car-reliance.

> *"There are a number of things that made me want to move [to Corstorphine]. The bus service for starters. Because both of us work in town and we wouldn't want to take the car into work every day; it's just not the lifestyle that we want."*

> Mary, 31. Corstorphine.

The above participant described the availability of a bus route as enabling her to avoid car reliance. Another participant from Corstorphine described his determination to continue cycling to work after relocating from the city centre.

> *"Although we're a bit further away in actual distance from [work] it's still pretty easy to commute to work by either bus or cycle… I try to avoid using the car if possible."*

Arnold, 37. Corstorphine.

When residents did talk about their car use, these car trips tended to be presented as a matter of necessity and compromise rather than of choice. A reoccurring theme from the accounts of Corstorphine participants was resigning to car-dependence in order to move to an affordable family home.

> *"Unfortunately, because we'll be priced out of the city centre, you know, to get a three-bedroom place this close to town is very expensive. So, when we're a bit further out, we'll have to take the car more. Which is a shame."*

Victoria, 34. Corstorphine.

One Corstorphine resident described her increased car use post-relocation as a 'complete lifestyle change'. Another said he had tried to resist car-use before eventually 'giving in' to mounting practicalities: "*it was the accumulative weight of convenience that basically drove us to get a car.*" These accounts support the idea that moving to a less walkable neighbourhood pushes people into increased car use. Throughout the interviews, residents described being reluctant to rely on a car.. In comparison, active and public transport modes were discussed favourably, even by those with frequent car-use.

Shops and facilities

There were notable differences in reported access to shops between the three case study areas. All Dalry participants reported easy access to a range of shops and facilities, even if some admitted that they did not often use them. Most residents who had moved to Corstorphine said that they did not have the access to shops and facilities that they would like. This corresponds to expectations that outer city residents will have poorer access to shops and facilities (Jenks & Jones, 2009). Throughout the interviews, participants said that access to shops and facilities had been an aspect of their relocation decision. Walkable access to shops and facilities was more frequently offered as a desirable neighbourhood characteristic than commuting distance by all participants. Some of the participants said they would prefer to travel further to work if it meant having better access to shops and facilities.

> *"We like the [local park] and we liked the flat. We liked the fact that you're kind of equidistant between green areas and [the shopping area] and the city centre, which is ten minutes. So it was kind of perfect for us. [It's] completely the other end of the city for work but it doesn't really matter!"*

Penny, 31. Restalrig.

The above participant described prioritising green space and shop access over commuting distance. She said she was willing to drive to work if it meant being able to 'nip out' somewhere. As described with car use, accounts of shops and facilities access were often about a preferred lifestyle rather than a practical convenience.

The neighbourhood preferences described above are by no means exhaustive but are particularly relevant to issues of walkability and RSS. Interestingly, there was little difference between neighbourhoods in how residents described their preference for green space, accessible shops and facilities and avoiding car-dependence. Although care should be taken in inferring behaviour from these accounts, it is interesting that participants' neighbourhood preferences did not necessarily align with the neighbourhood they moved to. Another point we want to draw out is that these neighbourhood preferences were often described as *lifestyle* preferences rather than as practicalities. In particular, residents from Corstorphine described car use as a compromise rather than a travel mode preference. In the following section, we examine participants' *relocation stories* and consider how these provide some insight into how and why such compromises are made.

Relocation stories

No participant had a single reason for relocating. When asked why they had decided to relocate, all 21 participants responded with detailed and personal stories of their circumstances and relevant life events. The value of qualitative analysis is in being able to unpick these narratives to look for themes. The following extract is an example of the richness of these accounts and the interplay between neighbourhood preferences and biography.

> *"I had got a job in [Small Town]. I could have lived there in that area, but it's awfully remote. So, I spoke to some friends living in the city and they had a spare room. I'd lived with them before, so I knew we wouldn't kill each other, and it was the right end of town for the commute. That ticked all those boxes and I commuted. I did that for about four years. It's easy access to where my parents live. [My fiancé] seemed to like this area so we both sort of gravitated to this part of the city. We weren't interested in [names comparable district]. Also, because we're getting married, we're now contemplating where the next move might be."*

> Amy, 28. Dalry.

The above illustrates the rich contextual narratives that frame relocation decisions, what we refer to here as a *relocation story*. This example contains themes found throughout other participants' stories. First, this is an account of more than one relocation: the prior move to live with friends, the latest move to live with a partner, and an anticipated future move once she is married. Throughout the interviews, participants' narratives situated their recent move as part of a broader history of

relocations. Second, relocations were often preceded by a trigger, such as a new job or getting married. Third, relocation involves consideration of and support from networks of friends and family. Finally, participants described how all these factors were deliberated alongside neighbourhood preferences and liking or 'gravitating' to certain areas.

Neighbourhood and identity

Looking across participants' stories, the neighbourhood they moved out of often held as much significance as the one they moved to. In the following extract for example, the participant explains that the area she moved out of had been too quiet for her.

> *"There was nothing there, perfect for bringing up children. Perfect for retiring to! But in my age group, unless you do want to settle down and have kids, I don't think it's an ideal place. I didn't really want to stay there. I always rented and always stayed within walking distance from where I want to be."*

> Brenda, 29. Dalry.

This was echoed by Rhona, a single mum, who described weighing up the decision to be in a safe place with opportunities for local social activities.

> *"It is quiet… that's why I want to get out of this area, there is nothing really happening!"*
> Rhona, 31. Restalrig

In contrast, other participants of similar age described moving away from a neighbourhood that was too noisy.

> *"There were groups hanging around and shouting in the street. Just students. But you get to the age where you think, I'm sure the argument is really important but we're all just trying to get a bit of sleep here!"*

> Lindsay, 33. Corstorphine.

> *I was just getting driven mad by neighbours, noise and traffic and everything! I just had to find somewhere that was quieter..!*

> Clare, 39. Corstorphine.

These could be interpreted merely as expressions of individual preferences for livelier or quieter neighbourhoods. However, this would fail to capture the temporality evident in both extracts. Another approach would be to understand relocation stories as forms of *identity work*, where a participant is performing and co-constructing her identity through conversation. The first is of someone who is young who wants to live somewhere with places to go, the second is someone who

is maturing and no longer identifies with a student lifestyle. Neither of these accounts describe fixed preferences; rather they are about relocations that reflect identities in transition.

Implicit and explicit associations were made between being younger and single and inner city characteristics, and between being married and raising a family with more suburban characteristics. An interesting example of this was a participant who, despite having recently relocated to Corstorphine with his wife and two children, had decided they would move back into the city. He described initially wanting a more spacious property and a garden but quickly found the neighbourhood to be 'disappointing' and 'boring'. He described how they decided to move out of the 'family home' to move into the city. He spoke of this imminent move as 'an adventure' that made him and his wife both excited and nervous. This thrill and apprehension reflect the fact that this move was unconventional. Although perhaps something that a younger couple might do, for a married couple with a young child, moving out of their suburban house is unusual and adventurous. The exception serves to underscore the taken-for-granted associations between family and suburban neighbourhood.

Where the heart is

Low walkable 'suburban' characteristics were repeatedly associated with maturity, getting married or having children. Accounts of moving to Corstorphine tended to focus on the property rather than the surrounding neighbourhood. The family house (or 'forever home') was described as appropriate for raising children and living in for the rest of one's life.

> *"And then this house came on the market […] and I just loved it! [..] It must be the right house. I'm not interested in moving somewhere that's not right for us!"*
>
> Lindsay, 33. Corstorphine.

Participants described being 'the right age' or feeling it was 'the right time' to make the move to a forever home, and this was usually triggered by marriage, having or wanting children. Many of the 'pull factors' described, such as wanting a garden, more space, better parking, or own front door, were presented as necessities for raising a family. However, these characteristics held emotive as well as practical significance. Several of the participants related property characteristics to their own childhood experiences or ideals of a family home.

> *"We talked about settling in [Dalry] but I think we would move to [Corstorphine]. [My husband] was brought up in a house and had a garden as well so I think that's both what we want."*
>
> Amy, 29. Dalry.

"I wasn't up for the kind of living-in-town flat anymore. I was over that and wanted a bit of peace and quiet and you know. This area [Corstorphine] is not dissimilar from the kind of area that I grew up in back in [city]."

Barbara, 34. Corstorphine.

What is particularly interesting about the quotes above is that, when the details of the participants' childhood homes were explored, neither had grown up in the 'typical' family neighbourhood they attributed to Corstorphine.

"Well, I actually grew up in an ex-council flat! But the kind of look and feel of the place is similar. It's just nice to find something that makes you feel all warm and fuzzy inside!"

Barbara, 34. Corstorphine.

Even those who had no previous experience of living in a detached or semi-detached house associated these property types with family life. The associations were sometimes emotive ('warm and fuzzy') rather than or in addition to being part of practical considerations. Our interpretation is that these reflect cultural ideals people have of what a family home should look like: suburban, semi-detached and with a garden. Alongside the practical reasons of affordability and house size, moving to a suburban house is symbolic of a transition in a person's life.

The natural progression

Most Corstorphine participants described their relocation as the distinct and definitive move to a family home as described above. Their relocation stories presented this as the inevitable end-point in their overall residential trajectory.

"Well, [we moved] because we were staying in flats before. So it was about moving on to a house rather than a flat. Flats didn't have gardens. So it's just one of those natural progressions, I think."

Mary, 31. Corstorphine.

We were at a stage when we wanted to be able to live together… We decided, yeah it would be nice to move to er, a house. We were both living in flats which was okay in many ways, but we were tempted with the idea of, you know, our place and [a] garden…

Arnold, 37. Corstorphine

Describing this as 'just' a 'natural progression' underscores how this participant's relocation from a flat to a house is unremarkable and expected. What is interesting is that this idea of an inevitable progression was also evident within the relocation stories of those who had moved to the more walkable Dalry and Restalrig neighbourhoods, most of whom had moved into a flat. Despite having

elected to move to a more walkable area and often speaking highly of walkable attributes, many of these participants anticipated a future move to more suburban location.

> *"I like [Dalry] at the moment, yes. I don't know what's going to happen later on if we have kids and stuff. Somewhere a bit more suburb-y would be more suitable. But at the moment it's brilliant [here]!"*
>
> Ben, 26. Dalry.

Abijah said she loves Dalry and that she would miss it if they decided to move out to raise a family.

> *We have thought like, could this [Dalry] be a place we could have a family? When I go to other parts of Edinburgh I think 'wow' they have awesome localities… but then we thought a lot… I feel like if I were somewhere far from the city centre then I wouldn't enjoy myself like this.*

Abijah, 28. DalryFelicity grew up in a rural area but 'became fond' of the inner city after university. However, she did not think she would settle in Dalry.

> *"Not in the long-term no [R: And why is that?] I don't know if I would anymore. You know there's a kind of time for everything and being a student was obviously a time to be in the city. If you're going to do it you should do it 100%. But I might nearly have had my fill of cities and be ready to go back to the country now."*
>
> Felicity, 31. Dalry

Again, we see a distinction between neighbourhood preference and more complex relocation decisions based on life stages. The following extract is from a participant who was a particularly keen walker and spent some time in the interview on expounding her preference for walkable neighbourhoods. Here she emphasizes this preference by saying it would persist *even* when she came to look for a 'proper' house.

> *"I think that, in the future, say in ten years' time, then I'm looking for a proper house then it'll be at the edge in a town where I can still walk places, but it'll be quieter. [Interviewer: Can you tell me what you mean by 'a proper house'?] Hm. I don't know. Like, er, one that you will raise your family in? Rather than just one for a couple of years."*
>
> Kelly, 25. Dalry.

An interesting finding of the qualitative analysis is that relocation narratives consistently distinguish preferences for walkable characteristics from the anticipated natural progression to a family home.

Discussion

We found no notable differences in expressions of preference for walkable characteristics (specifically green space, transport links, and access to shops and facilities) between participants who had moved into high- and low-walkability neighbourhoods. Neighbourhood preferences were expressed in terms of practicalities (such as getting to work) but also as 'lifestyle preferences', by which we mean the activities and routines that people value and aspire to. Car use or car dependence was discussed as a necessity rather than a preference, and often referred to as a lifestyle compromise for moving to the right place. We contrasted 'neighbourhood preferences' with 'relocation stories' to illustrate the value of this approach for understanding wider relocation trends.

The use of qualitative research for understanding the relationship between the built environment and physical activity is often narrowly conceived as an extension of establishing causal connections (Salvo, Lashewicz, Doyle-Baker, & McCormack, 2018). This underestimates the potential for exploring residents' meaningful understandings and testing conceptualisations. We used semi-structured interviews to allow for participants' rich descriptions of relocation. These narratives are an interweaving of personal biography, practical circumstance and choice. Storytelling is performative: talking with others to helps to make sense of life and experiences (Bryman & Burgess, 2002; Spencer et al., 2003). Through this lens we examined the taken-for-granted associations that underpin the meanings portrayed. Although each relocation story is unique, we identified common themes within the narratives. Relocation was often prompted by life events, as noted elsewhere (Cao, 2015b; Ettema & Nieuwenhuis, 2017; Gustafsson et al., 2013; Howell, Farber, Widener, Allen, & Booth, 2018; Zhang, 2014). We also found that neighbourhood types were associated with different life stages and were symbolic of personal transitions. For example, a meaningful connection between 'inner-city' and being a student. In respect to life transitions, the neighbourhood a person moves *from* can be as significant to them as the one they move *to*. It can represent a personal growth or transition from one stage of life to another. This connection between place and biography is what makes 'relocation stories' a distinct object for qualitative analysis.

Relocation stories typically reference several (re)locations, such as where the person grew up or planned to live in the future. From the perspective of walkability and RSS, it is notable that many participants anticipated a suburban family home as the 'natural' endpoint in their residential trajectory. Throughout the interviews, participants implicitly equated inner city characteristics with being younger and single, and suburban characteristics with maturity and raising a family, regardless of whether this accurately represented the participant's own circumstances. When a relocation was

contrary to the stereotype, such as a family moving to the inner city or a single woman moving to the suburbs, the storyteller provided addition explanation and justification. We argue that this highlights the cultural norms and expectations of neighbourhood type and life stages, and that these are a fundamental and often ignored aspect of relocation decisions.

There are a number of implications of these findings. From a planning perspective, built environment interventions aimed at increasing walking and active transport should consider how the prospective changes will relate to prevailing sociocultural expectations about what (and for whom) those urban spaces are for. Walkable features are likely to differ in their effectiveness depending on the resident types and corresponding resources and circumstances. Planners may want to consider not only the effectiveness of walkable design features but whether these disproportionately attract or deter certain types of relocation. For example, there may be design solutions to making more affordable and compact neighbourhoods fulfil social expectations of the 'forever home'. On the otherhand, from a public health perspective, in addition to policies aimed at 'nudging' individual behaviour, we might consider campaigns that challenge or expand popular conceptions that the family home is quintessentially a suburban space. Architects and urban planners will often look to profile consumer expectations in order to develop commercially viable spaces. We need to better understand how consumer expectations are socially constructed and whether these can be influenced. There may be cultural 'tipping points' where alternative models of the family home become recognisable and accepted.

Primarily the implications of these findings concern how we measure and conceptualise RSS. RSS is typically measured through survey questions about an individual's neighbourhood preferences and positioned against walkability associations. The findings presented here support concerns about the validity of this expedient approach. Not only did we find important differences between participants' neighbourhood preferences and reasons for relocating, but also that preferences were reflexively prioritised depending on type of relocation being contemplated. What this means for research is that we may find there are more similarities in the neighbourhood preferences of individuals making the same types of relocation decisions (e.g. to live with friends, to raise a family), than we will in the same individual over multiple relocations. In addition to rethinking the implicit individualism of RSS measurement, work is needed to demarcate and catgeories relocation types as an object of measurement and analysis.

Many would argue that this methodological problem is resolved through longitudinal approaches or improved modelling, perhaps by including additional controls for life stages, marital status or parenthood (Braun et al., 2016; Christiansen, Madsen, Schipperijn, Ersboll, & Troelsen, 2014; Ding et al., 2018). These are certainly important studies, but it is worth considering what purpose additional

controls for RSS serve. There is a tendency within walkability research to want to differentiate and nullify RSS in order to 'properly' measure environmental effects. Consider, for example, the language used in a recent (and excellent) paper by Howell et al., who refers to collecting survey data in order to provide "*protection against* residential self-selection bias" (Howell et al., 2018: 153) (*emphasis added*). This language reflects the polarisation of walkability (as factual) and RSS (as bias), which is born of a collective and well-intended desire to evidence the behavioural change potential of healthy environments. However, there is a risk that we systematically bracket out and ignore real and important facts about how, why and when people flow between places. Now the importance of healthy, walkable neighbourhoods is established, it is time to revisit RSS as an essential dimension of the complex relationship between people and places.

Conclusion

We have presented data from interviews conducted with residents who had recently moved into neighbourhoods of differing levels of walkability. The aim was to better understand people's reasons for relocating, which is fundamental to how we measure and conceptualise neighbourhood preferences and neighbourhood effects. Residents understood their relocation not simply as an isolated act of utility, but in the context of their broader residential history and future. By analysing relocation stories, we highlighted the social significance of relocation (first home, living with partner, raising a family, etc.) and how these fundamentally configure how neighbourhood preferences are prioritised in decision-making. The crucial example is that moving to a 'family home' was commonly acknowledged and anticipated as the point at which neighbourhood preferences were felt to be less important. In one respect the findings reflect what we know about demographic patterns across neighbourhood types. The unique insight from these findings is that cultural associations between life stages and neighbourhood types are fundamental to relocation decisions. Moreover, these cultural aspects of relocation may mediate differences between neighbourhood preferences and the neighbourhood a person moves to.

Limitations

A limitation of this study is the use of pre-existing case study neighbourhoods as proxies for walkability. This is not ideal as the project case study areas were originally selected to represent multiple domains (transport, design, and sustainability), not specifically walkability. We feel that the proxy is appropriate, particularly as participants' own assessment of their neighbourhood was given analytical priority.

A further limitation is the representativeness of the sample. Only 6/21 participants were male and all but one was white. Additionally, the sample only included those aged between 25 and 45. The results will be limited by the skewed sample.

Funding

References

Barr, S., & Prillwitz, J. (2014). A Smarter Choice? Exploring the Behaviour Change Agenda for Environmentally Sustainable Mobility. *Environment and Planning C: government and policy, 32*(1), 1-19. doi:10.1068/c1201

Battista, G. A., & Manaugh, K. (2018). Stores and mores: Toward socializing walkability. *Journal of Transport Geography, 67*, 53-60. doi:10.1016/j.jtrangeo.2018.01.004

Braun, L. M., Rodriguez, D. A., Evenson, K. R., Hirsch, J. A., Moore, K. A., & Diez Roux, A. V. (2016). Walkability and cardiometabolic risk factors: Cross-sectional and longitudinal associations from the Multi-Ethnic Study of Atherosclerosis. *Health Place, 39*, 9-17. doi:10.1016/j.healthplace.2016.02.006

Bryman, A., & Burgess, B. (2002). *Analyzing qualitative data*: Routledge. doi:DOI

Cao, X., Mokhtarian, P. L., & Handy, S. L. (2008). *Examining the impacts of residential self-selection on travel behavior: Methodologies and empirical findings*. University of Minnesota. Report published October 2018

Cao, X. Y. (2015a). Examining the impacts of neighborhood design and residential self-selection on active travel: a methodological assessment. *Urban Geography, 36*(2), 236-255. doi:10.1080/02723638.2014.956420

Cao, X. Y. (2015b). Heterogeneous effects of neighborhood type on commute mode choice: An exploration of residential dissonance in the Twin Cities. *Journal of Transport Geography, 48*, 188-196. doi:10.1016/j.jtrangeo.2015.09.010

Cerin, E., Conway, T. L., Adams, M. A., Barnett, A., Cain, K. L., Owen, N., . . . Sallis, J. F. (2018). Objectively-assessed neighbourhood destination accessibility and physical activity in adults from 10 countries: An analysis of moderators and perceptions as mediators. *Social Science & Medicine, 211*, 282-293. doi:10.1016/j.socscimed.2018.06.034

Christiansen, L. B., Cerin, E., Badland, H., Kerr, J., Davey, R., Troelsen, J., . . . Sallis, J. F. (2016). International comparisons of the associations between objective measures of the built environment and transport-related walking and cycling: IPEN adult study. *Journal of transport & health, 3*(4), 467-478. doi:10.1016/j.jth.2016.02.010

Christiansen, L. B., Madsen, T., Schipperijn, J., Ersboll, A. K., & Troelsen, J. (2014). Variations in active transport behavior among different neighborhoods and across adult life stages. *Journal of transport & health, 1*(4), 316-325. doi:DOI 10.1016/j.jth.2014.10.002

Clary, C., Matthew, S. A., & Kestens, Y. (2017). Between exposure, access and use: Reconsidering foodscape influences on dietary behaviours. *Health & place, 44*, 1-7. doi:10.1016/j.healthplace.2016.12.005

Colley, K., Brown, C., & Montarzino, A. (2016). Restorative wildscapes at work: an investigation of the wellbeing benefits of greenspace at urban fringe business sites using 'go-along' interviews. *Landscape Research, 41*(6), 598-615.

De Bourdeaudhuij, I., Van Dyck, D., Salvo, D., Davey, R., Reis, R. S., Schofield, G., . . . Cerin, E. (2015). International study of perceived neighbourhood environmental attributes and Body Mass Index: IPEN Adult study in 12 countries. *Int J Behav Nutr Phys Act, 12*(1), 62. doi:10.1186/s12966-015-0228-y

De Vos, J., Ettema, D., & Witlox, F. (2018). Changing travel behaviour and attitudes following a residential relocation. *Journal of Transport Geography, 73*, 131-147. https://doi.org/10.1016/j.jtrangeo.2018.10.013

Ding, D., Nguyen, B., Learnihan, V., Bauman, A. E., Davey, R., Jalaludin, B., & Gebel, K. (2018). Moving to an active lifestyle? A systematic review of the effects of residential relocation on walking, physical activity and travel behaviour. *Br J Sports Med, 52*(12), 789-799. doi:10.1136/bjsports-2017-098833

Ettema, D., & Nieuwenhuis, R. (2017). Residential self-selection and travel behaviour: what are the effects of attitudes, reasons for location choice and the built environment? *Journal of Transport Geography, 59*, 146-155. https://doi.org/10.1016/j.jtrangeo.2017.01.009

Ewing, R., & Cervero, R. (2010). Travel and the built environment: A meta-analysis. *Journal of the American planning association, 76*(3), 265-294. doi.org/10.1080/01944361003766766

Feuillet, T., Salze, P., Charreire, H., Menai, M., Enaux, C., Perchoux, C., . . . Simon, C. (2016). Built environment in local relation with walking: Why here and not there? *Journal of Transport & Health, 3*(4), 500-512. doi.org/10.1016/j.jth.2015.12.004

Frumkin, H., Frank, L., & Jackson, R. J. (2004). *Urban sprawl and public health: Designing, planning, and building for healthy communities*: Island Press. doi:DOI

Giles-Corti, B., Vernez-Moudon, A., Reis, R., Turrell, G., Dannenberg, A. L., Badland, H., . . . Stevenson, M. (2016). City planning and population health: a global challenge. *The Lancet, 388*(10062), 2912-2924. doi.org/10.1016/S0140-6736(16)30066-6

Green, J. T., N. (2004). *Qualitative Methods for Health Research*. London: Sage. doi:DOI

Gustafsson, P. E., San Sebastian, M., Janlert, U., Theorell, T., Westerlund, H., & Hammarstrom, A. (2013). Residential selection across the life course: adolescent contextual and individual determinants of neighborhood disadvantage in mid-adulthood. *PLoS One, 8*(11), e80241. doi:10.1371/journal.pone.0080241

Heath, G., Brownson, R., Kruger, J., Miles, R., Powell, K., Ramsey, L., & Services, T. F. o. C. P. (2006). The Effectiveness of Urban Design and Land Use and Transport Policies and Practices to Increase Physical Activity: A Systemmatic Review *Journal of Physical Activity and Health, 3*(1), S55-S76. doi.org/10.1123/jpah.3.s1.s55

Howell, N. A., Farber, S., Widener, M. J., Allen, J., & Booth, G. L. (2018). Association between residential self-selection and non-residential built environment exposures. *Health & place, 54*, 149-154. doi:10.1016/j.healthplace.2018.08.009

Jenks, M., & Jones, C. (2009). *Dimensions of the sustainable city* (Vol. 2): Springer Science & Business Media.

Krizek, K. J., Handy, S. L., & Forsyth, A. (2009). Explaining changes in walking and bicycling behavior: challenges for transportation research. *Environment and Planning B-Planning & Design, 36*(4), 725-740. doi:10.1068/b34023

Kuper, A., Reeves, S., & Levinson, W. (2008). Qualitative research: An introduction to reading and appraising qualitative research. *BMJ: British Medical Journal, 337*(7666), 404-407.

Legard, R., Keegan, J., & Ward, K. (2003). In-depth interviews. In J. Lewis & J. Richie (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage.

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach* (Vol. 41): Sage. London

McCormack, G. R., & Shiell, A. (2011). In search of causality: a systematic review of the relationship between the built environment and physical activity among adults. *International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 125. doi:Artn 12510.1186/1479-5868-8-125

Minh, A., Muhajarine, N., Janus, M., Brownell, M., & Guhn, M. (2017). A review of neighborhood effects and early child development: How, where, and for whom, do neighborhoods matter? *Health & Place, 46*, 155-174.

Muggenburg, H., Busch-Geertsema, A., & Lanzendorf, M. (2015). Mobility biographies: A review of achievements and challenges of the mobility biographies approach and a framework for further research. *Journal of Transport Geography, 46*, 151-163. doi:10.1016/j.jtrangeo.2015.06.004

Nathan, A., Wood, L., & Giles-Corti, B. (2013). Selling New Neighborhoods as Good for Walking: Issues for Measuring Self-Selection. *Journal of Physical Activity & Health, 10*(1), 5-9. doi:DOI 10.1123/jpah.10.1.5

Nielsen, T. S., & Hansen, K. B. (2007). Do green areas affect health? Results from a Danish survey on the use of green areas and health indicators. *Health & place, 13*(4), 839-850. doi.org/10.1016/j.healthplace.2007.02.001

Olsen, J. R., Macdonald, L., & Ellaway, A. (2017). Changes over time in population level transport satisfaction and mode of travel: A 13 year repeat cross-sectional study, UK. *J Transp Health, 6*, 366-378. doi:10.1016/j.jth.2017.03.012

Ruman, S. 2020, *CityForm network.*, viewed 31 July 2020, <http://www.city-form.org/index.html>.

Reyniers, T., Houttekier, D., Cohen, J., Pasman, H. R., & Deliens, L. (2014). The acute hospital setting as a place of death and final care: A qualitative study on perspectives of family physicians, nurses and family carers. *Health & place, 27*, 77-83. doi:10.1016/j.healthplace.2014.02.002

Ritchie, J., & Lewis, J. (2003). *Qualitative research practice: A guide for social science students and researchers*: Sage Publications Limited.

Ritchie, J., Lewis, J., & Elam, G. (2003). Designing and Selecting Samples. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researcher*. London: Sage publications.

Sallis, J. F., Cerin, E., Conway, T. L., Adams, M. A., Frank, L. D., Pratt, M., . . . Owen, N. (2016). Physical activity in relation to urban environments in 14 cities worldwide: a cross-sectional study. *Lancet, 387*(10034), 2207-2217. doi:10.1016/S0140-6736(15)01284-2

Salvo, G., Lashewicz, B. M., Doyle-Baker, P. K., & McCormack, G. R. (2018). Restalriguilt Environment Influences on Physical Activity among Adults: A Systematized Review of Qualitative Evidence. *International journal of environmental research and public health, 15*(5), 897. doi:ARTN 89710.3390/ijerph15050897

Spencer, L., Ritchie, J., & O'Connor, W. (2003). Analysis: Practice, Principles and Processes. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage.

Van Dyck, D., Cardon, G., Deforche, B., Owen, N., & De Bourdeaudhuij, I. (2011). Relationships between neighborhood walkability and adults' physical activity: How important is residential self-selection? *Health & place, 17*(4), 1011-1014. doi.org/10.1016/j.healthplace.2011.05.005

Van Dyck, D., Cerin, E., De Bourdeaudhuij, I., Hinckson, E., Reis, R. S., Davey, R., . . . Sallis, J. F. (2015). International study of objectively measured physical activity and sedentary time with body mass index and obesity: IPEN adult study. *Int J Obes (Lond), 39*(2), 199-207. doi:10.1038/ijo.2014.115

Woods, L. and Ferguson, N.S., 2014. The influence of urban form on car travel following residential relocation: a current and retrospective study in Scottish urban areas. *Journal of transport and land use*, *7*(1), pp.95-104.

Xiong, Y. B., & Zhang, J. Y. (2014). Applying a Life-oriented Approach to Evaluate the Relationship between Residential and Travel Behavior and Quality of Life Based on an Exhaustive CHAID

Approach. *9th International Conference on Traffic and Transportation Studies (Ictts 2014), 138*, 649-659. doi:10.1016/j.sbspro.2014.07.255

Zhang, J. Y. (2014). Revisiting residential self-selection issues: A life-oriented approach. *Journal of Transport and Land use, 7*(3), 29-45. doi:10.5198/jtlu.v7i3.460