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A salutogenic urban design framework: the case of UK local high streets and older people

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Summary

The article provides a novel look at the links between salutogenesis, health promotion, and urban design supported by the findings of recent research on local high streets and their benefits for the well-being of older people. Salutogenesis and the related explanatory concept of sense of coherence (SOC) have provided a theoretical framework for developing healthy settings interventions, shifting the focus from exploring barriers and deficits to assets and resources in promoting people's health and well-being. While these concepts have informed policies and programmes at the level of regions and cities, no attempt has been made to establish more direct links with the disciplines devoted to the organization and design of the built environment at the scale of public spaces and streets. This article advances the idea that the main categories of SOC—comprehensibility, manageability and meaningfulness—have found application in urban design theory. Linking these categories with urban design concepts in a comprehensive framework, it is possible to guide interventions aimed at strenghtening well-being resources available in the public realm. This is corroborated by the findings resulting from a study of the well-being experiences of older people (n = 84) across a range of local high streets in the city of Edinburgh (UK) applying an innovative multi-methods approach. The discussion establishes the links between well-being benefits, SOC constructs and urban design concepts, and underscores the potential of the proposed framework to guide a design-oriented salutogenic approach to the built environment.

Lay summary

In this article, we propose a novel conceptual framework that links health promotion and the theory of salutogenesis with key concepts commonly used in the urban design. The framework is articulated in relation to the findings of recent research on main neighbourhood commercial streets in Edinburgh (UK)—local high streets—and their benefits for the well-being of older people. Salutogenesis theory and related concepts have emphasized the role that everyday environments can have in promoting people's health and well-being, through the opportunities for social interaction and access to material resources they provide. They have informed policies and programmes at city-wide level but not at the scale of streets and public spaces, which is the spatial domain of urban design. The proposed framework establishes the links for a design-oriented salutogenic approach to the built environment and suggests a range of interventions in local high streets that can benefit an ageing population.

Keywords: salutogenesis, urban design, ageing population

INTRODUCTION

Place and the built environment are central to the people's well-being. The concept of place includes the meanings, emotional ties and feelings of belonging and agency linked to a given location (Fang et al., 2016). People develop a sense of place—a connection with the place in which they live (Degnen, 2016)—through 'clusters of positive cognition linked to the meaning of specific places' (Gordon, 2010, p. 758; Phillips et al., 2011). The role of place and the environment, including everyday places in supporting independence, autonomy and well-being has become increasingly relevant in health promotion (WHO, 1986; Dooris et al., 2007;

Morgan and Ziglio, 2007; Gagné et al., 2018). This 'salutogenic' focus (Dooris, 2013, p. 39) is influenced by Aaron Antonovsky's 'salutogenesis' theory about what creates health (Kickbusch, 1996; Dooris, 2013). Antonovsky's theory supports the idea that people sustain their health and well-being by making use of a range of material and social resources in a dynamic relationship with the environment in which they live, work and play (Antonovsky, 1979, 1996).

Accordingly, in health promotion emphasis has been put on the importance of multisectorial policies (Kickbusch, 2012), which have been at the forefront of key policy drivers including the World Health Organization (WHO) Healthy Cities programmes (WHO, 1988), and the Age-Friendly Cities and communities agenda (Plouffe and Kalache, 2010; Taylor, 2010). Designing cities for health and well-being has increasingly become a shared concern for urban policy makers, through the application of holistic and multidisciplinary approaches at various urban scales (Barton et al., 2010; Forsyth et al., 2017; Cushing and Miller, 2019). Whilst the term 'salutogenesis' has been applied in a theoretical sense to understand the person-environment relationship (Macdonald, 2005; Völker and Kistemann, 2011; Ward-Thompson, 2011, 2013; Signorelli et al., 2016), Antonovsky's theory has not found an explicitly stated practical application in urban design. This is despite salutogenesis and health promotion emphasizing the 'inextricable links between people and their environment' (WHO, 1986) and the potential of urban design to bridge the disciplines of planning and architecture (Vernez-Moudon, 2003) to shape environments that sustain people's health and well-being.

This article sets out to establish the connections between Antonovsky's notion of salutogenesis and urban design theory, and in doing so establish a framework to guide urban design policies and interventions aimed at improving people's well-being. The framework is then applied to the role that everyday environments, and in particular local high streets, have in supporting the well-being of an ageing population (Biggs et al., 2007; WHO, 2007; Finkelstein, 2008; Buffel and Phillipson, 2018).

THEORETICAL FOUNDATIONS: TOWARDS A CONCEPTUAL FRAMEWORK FOR SALUTOGENIC URBAN DESIGN

In this section, we first consider the key concepts underpinning Antonovsky's salutogenesis theory and sense of coherence (SOC). The article then explores the links between SOC and well-being in relation to the built environment and the relevance of SOC key constructs to the urban design.

Salutogenesis and the built environment

Salutogenesis explains the process by which people stay healthy by understanding the world in which they live and making use of the resources at hand (Antonovsky, 1979, 1996). Health cannot be considered 'in terms of a dichotomy between ill and healthy people' (Antonovsky, 1979, p. 48), rather it is permanently present although operating on a continuum and influenced by changing circumstances and life events (Antonovsky, 1987). From a salutogenic perspective, health promotion seeks to support people's well-being (Eriksson and Lindström, 2006) through the dynamic relationship between individuals and their surroundings, making health the means to achieve a good life and not an end in and of itself (Lindström and Eriksson, 2010). Antonovsky's emphasis on resources (Antonovsky, 1979) influenced the evolution of public health from the late 1980s onwards and the renewed focus on supportive environments—or 'healthy settings' (WHO, 1986)—as 'assets' for health (Eriksson and Lindström, 2008; Mittelmark et al., 2017). These are broadly defined as any resources that can enhance the ability to foster health and well-being and include settings such as healthcare facilities, schools, workplaces, and the wider urban environment (Dooris et al., 2007; Morgan and Ziglio, 2007). Within cities, environmental resources to be found at various scales of the people-environment experience can be linked to health and well-being outcomes through a salutogenic framework (Maass et al., 2017).

The capacity to assess everyday life situations making use of assets and resources to find meaning in life and promote health is described as SOC, articulated through three interrelated dimensions of comprehensibility, manageability and meaningfulness (Antonovsky, 1979; Lindström and Eriksson, 2005). Antonovsky (Antonovsky, 1979) describes two main types of resources: the Generalized Resistance Resources (GRRs) and the Specific Resistance Resources (SRRs). The GRRs 'have wide-ranging utility' (Mittelmark et al., 2017, p. 71) and can be found within a person (biological and psychological mechanisms), a community or the environment (Idan et al., 2017). The GRRs make it possible to access the SRRs, which in contrast 'have situation-specific utility' (Mittelmark et al., 2017, p. 71). Examples of SRRs are amenities and services like day care centres transport infrastructure, healthy food outlets and any other public accessible social places that can be considered health-promoting assets (Koelen et al., 2017; Lake, 2018; Alidoust et al., 2019; Perez-Wilson et al., 2020). In this work, we can consider local high streets as GRRs because they are

settings with wide-ranging utility, and their socio-spatial features as SRRs because these are specific to each local high street.

Well-being, SOC and urban design

In this article, as supported in other studies on people-environment research (Bowling and Gabriel, 2007; Nordbakke and Schwanen, 2014), well-being is defined as the self-reported subjective assessment of what people describe as having a positive impact on their life, including the built environment and the resources that are part of daily life experiences. Positive feelings, self-esteem and the fulfilment of one's purpose and needs have been associated with the material, social and psychological resources available in places (Atkinson et al., 2012).

In environmental gerontology, well-being has been framed in terms of the functional congruence between individual abilities and the demands the environment poses (Nahemow and Lawton, 1973), leading to the idea that the environment can support people's competencies and contribute to their quality of life (Lawton, 1999; Glass and Balfour, 2003; Plouffe and Kalache, 2010). Researchers have, for example, explored the impact of mobility within the community on feelings of being active, autonomous and independent (Holland et al., 2005; Peace et al., 2006; Diehr and Hirsch, 2010).

In extending our understanding of relational aspects of well-being, sense of identity, belonging and place, research has identified the importance of the interdependency between people and the environment, for example, linked to access to everyday settings outside the home, including local amenities (Rowles, 1978, 1983, 1993, 2000; Phillips et al., 2011; Phillips et al., 2013; Woolrych et al., 2022). Research has also highlighted the social dimension of public spaces and its benefits for people's well-being (Mean and Tims, 2005; Dines et al., 2006; Worpole and Knox, 2008; Anderson et al., 2017). The pursuit of goals, social relationships and meaning in everyday environments form central components of Antonovsky's SOC theory (Fave et al., 2011). The links between SOC, well-being and quality of life have been evidenced in studies that have looked at self-reported daily life experiences (Eriksson and Lindström, 2006, 2007). SOC has been used in relation to active travel and to access to green areas (Koelen et al., 2017; Lillefjell et al., 2017), while age-friendly communities have identified the importance of everyday resources that can strengthen people's SOC (Koelen et al., 2017; Mittelmark et al., 2017).

We argue that SOC and its sub-constructs can be taken as linking categories between subjective well-being emerging from people–environment interaction and urban design. This is because the SOC constructs cast light on the connections between the psychosocial and cultural foundations of Antonovsky's health and well-being theory and the physical, social and cultural resources available in the built environment upon which it is possible to have direct influence through urban design.

SOC constructs and urban design

The salutogenic framework is cognate with architectural design 'as it understands the environment as a source of meaning, as a sphere of influence and for its readability' and SOC provides a link between architecture, place and well-being outcomes (Golembiewski, 2010, p. 103). This approach to architectural space is yet to be found in urban design despite the relevance of SOC constructs as we set out to articulate in this section.

In the urban design, comprehensibility can be seen as a matter of spatial cognition in terms of one's capability to find their way in the environment and it has been related to people's well-being (Lynch, 1960). Comprehensibility is relevant to the reading of a place as distinctive, to moving around easily. It resonates with urban design concepts such as imageability, intelligibility and legibility (Lynch, 1960; Mehta, 2013, 2014), and with wayfinding strategies (Carpman and Grant, 2002). Imageability in streets is determined by the definition and distinctiveness of the boundaries of the urban space such as pavements, buildings and shopfronts, and by the presence of landmarks that make wayfinding easier. Intelligibility concerns the visual cues that relate the perceived space to others (Hillier, 1996), while legibility is defined as the 'ease with which its [the city's] parts can be recognized and organized into a coherent pattern' (Lynch, 1960, p. 2). Legibility can also minimize the risk of confusion and anxiety supporting wayfinding in those living with dementia (Burton and Mitchell, 2006; Mitchell, 2014). A legible space makes people feel at ease, meaning they are familiar with the built environment, street life and the behaviours which take place in it as part of the mastery of the built environment (Ben, 1988; Montgomery, 1998). Comprehensibility, or making sense of a place, is therefore, linked to the activities within a location, 'to the extent that they are themselves perceived as vivid and coherent' (Lynch, 1984, p. 131), and in the way public life makes a positive contribution to the experience of the public realm.

Manageability can be related to three relevant aspects of the built environment. The first is the experience of stress in vibrant urban settings and the corresponding capacity to cope (Geller, 1980; Krupat, 1985; Moser, 2012). Vibrancy is commonly described as urban vitality (Jacobs, 1961), and linked to the number of people present in the street, which in turn depends on the attraction, diversity and accessibility of a place

(Montgomery, 1998). Accessibility also includes the physical 'user-friendliness' of the built environment. Successful public spaces are considered to be those in which a balance is struck between the actual and perceived physical accessibility of the environment (Llewelyn-Davies, 2000; Carmona et al., 2003; Great Britain, DfT, 2007; Ewing and Clemente, 2013). A second aspect of manageability sees urban space as the medium through which to access resources, described in terms of acceptable walking distances to amenities (Barton et al., 2006; Gehl, 2011). Similarly, manageability has been studied in gendered approaches to urban planning aimed at reconciling women's productive and reproductive activities (Gilroy and Booth, 1999; Sanchez-de-Madariaga and Roberts, 2016). Hence, accessibility shares many attributes with the concept of walkability, which also relates to perceptual qualities of the built environment such as the visual and spatial complexity and the variety of uses and activities (Ewing and Clemente, 2013; Forsyth, 2015). Lastly, manageability can also encapsulate one's ability to shape and influence their environment, emphasizing the importance of public participation in the decision-making processes (Rydin, 1999; Rydin and Pennington, 2000), a fundamental tenet of the sustainable health (Marmot and Allen, 2013) and Age-Friendly Cities agendas (WHO, 2007).

The third and arguably most relevant dimension of SOC is meaningfulness. This can be related to a 'sense of place', which encapsulates the emotional links that people establish with the built environment sustained by individual and collective memories re-enacted through daily practices of use throughout the life course (DeMiglio and Williams, 2008; Lewicka, 2010; Degnen, 2016; Fang et al., 2016). Sense of place extends our understandings of place beyond practical and functional dimensions (Degnen, 2016). 'Places are infused with meaning and feeling' (Gilroy, 1995, p. 88) and are a combination of physical, social, symbolic and emotional facets that have long been considered in design disciplines (Cresswell, 2014). Sense of place or the 'prevalent feeling of a place' (Llewelyn-Davies, 2000, p. 22) is also a central concept to place-making (Carmona et al., 2003), and is often indistinctively referred to as 'spirit of a place' or 'genius loci', related to the specific character of a location (Lang, 2005, p. 371). 'Genius loci', although criticized as overlooking the social and contested formation of place identity (Dovey, 2009), refers to the combination of valued physical features combined with their symbolic and cultural meanings, originated in activities and patterns of use (Canter, 1977; Norberg-Schulz, 1980; Montgomery, 1998; Stedman, 2003; Lang, 2005;). Patterns of use can lead to a greater meaning of urban form—a vivid and sharp image of the place in which people live

(Lynch, 1960). Places aligned with the expectations of the individual contribute to emotional security, balance and well-being (Lynch, 1960). This 'fit' means being at ease with a place, reinforcing or 'buoying' (Glass and Balfour, 2003) —their individual competencies, sense of autonomy, self-realization and well-being, in particular for older people (Gilleard et al., 2007; Atkinson et al., 2012). By walking, the environment is perceived at slow speed and in greater detail, and the aesthetic appeal of buildings, streetscape and active frontages of shops can contribute to meaningful and pleasant experiences (Cold, 2001; Moudon and Lee, 2003; Lindal and Hartig, 2013). This is important because 'sensory experiences are what make our lives go well, i.e. it's about understanding and enhancing our physical and emotional responses to things' (Thin, 2017, p. 6).

Having established the theoretical links between the SOC constructs, urban design concepts and the potential impact on people's well-being, in the following sections the article will explore the findings of empirical research undertaken on local high streets—a relevant setting for people's everyday experiences—and the role they can have in providing SSRs to support older adults' subjective well-being. In turn, these resources are discussed in relation to a proposed conceptual framework, drawing links between the three main dimensions of SOC and key urban design concepts.

METHODOLOGY

Case studies

An in-depth, inductive place-based investigation was undertaken exploring self-reported well-being amongst older adults across local high streets in the city of Edinburgh, Scotland where they are also referred to as 'local town centres' (City of Edinburgh Council, 2016); therefore, both terms are used interchangeably in this work. Local high streets can support people on lower incomes, with restricted mobility and older people, providing access to shops, services and other facilities (Griffiths et al., 2008; Tibbalds, 2012). They can foster public life, social interaction and a sense of community (Carmona et al., 2003; Dobson, 2015). The Edinburgh Local Development Plan describes nine different local high streets as 'important focal points for people who live and work in Edinburgh, providing shopping, leisure and community facilities in locations which can be easily accessed by walking, cycling or public transport.' (City of Edinburgh Council, 2016, p. 35). These locales were audited according to a range of nine parameters related to their 'link' and 'place' functions (Jones et al., 2007, p. xi), namely, the number of bus routes and average traffic flow, percentage of population over 60, degree of material deprivation of pensioner households, rate of crimes per 10,000 habitants, vacancy

Edinburgh LTC Overall Comparison

Data sources
Scottish Neighbourhood Statistics, 2008, 2011, 2012
Edinburgh Town Centres Review, 2010, 2013
Annual Average Daily Flow, UK Department for Transport, 2013
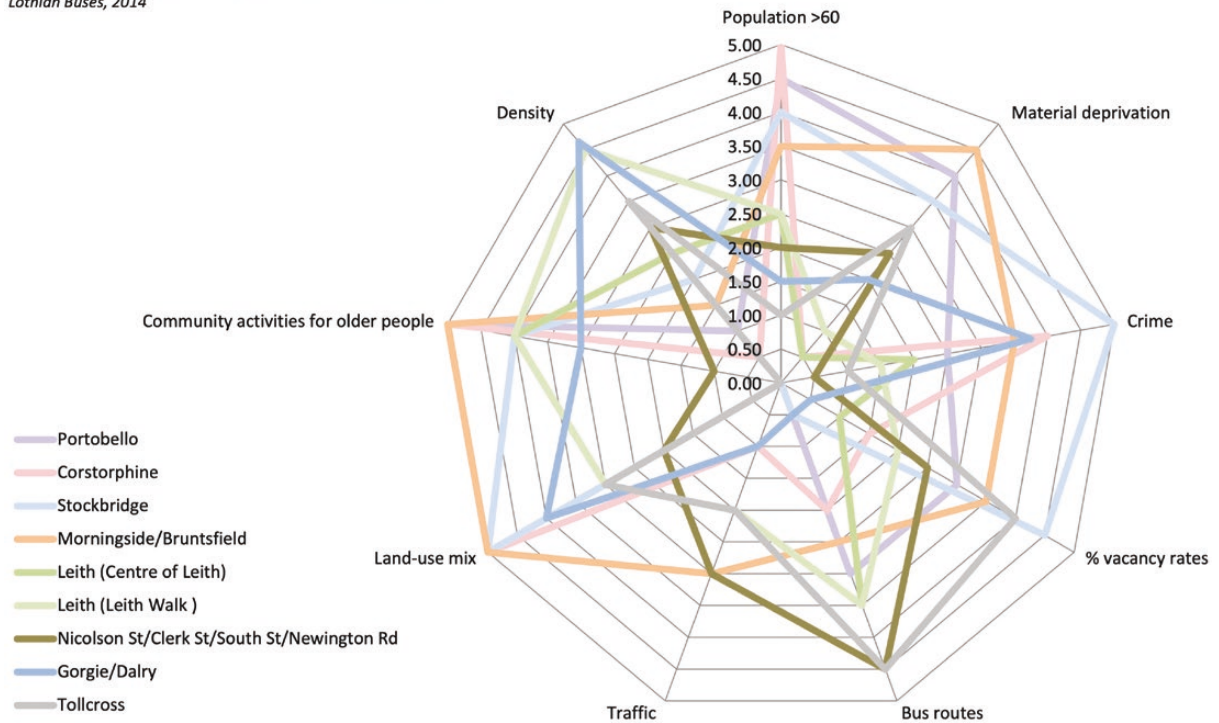*Lothian Buses, 2014*

Fig. 1: Diagram of the nine parameters used to audit Edinburgh's nine local high streets.

rate along the streets, number of community activities for older people, density as dwellings per hectare and land use mix (see Fig. 1).

Three high streets were then chosen to capture a wide spectrum of these variables: Corstorphine town centre (CTC) in the west, Leith Central town centre (LTC) in the north-east and Morningside town centre (MTC) in the south (see Fig. 2).

Methods

Interviews conducted by the lead author were chosen as the primary method of data collection to access place meanings and behaviours from the perspective of the older people. Three dimensions of positionality, namely, age, gender and nationality were used in a constructive way (Collins and Cooper, 2014) in the interviews. Walking interviews (*n* = 25), guided by participants, were prioritized to place the narrative of older people's experience in its spatial context, allowing for a greater understanding of the interaction with the built environment and for situated social encounters to be observed and recorded (Jones et al., 2008; Evans and

Jones, 2011; Van Cauwenberg et al., 2012; Brookfield et al., 2017). Semi-structured interviews (*n* = 16) in easy to access locations of participants' choice along the high streets were used to capture in-depth discussion about perceptions, feelings and lifecourse events and their impact on place use. Twelve focus groups (*n* = 51, 3–8 participants) were undertaken amongst community groups centred around scheduled activities and conducted in premises people were already familiar with, providing an opportunity to develop more collective understandings of place. A pilot was conducted to test the walking interviews procedure and to improve the interviews guide.

Participants

A purposive sampling strategy was adopted and participants were recruited in the local communities, via public amenities, services and facilities on the high streets and through local service providers. The main inclusion criteria were age and 'geographical homogeneity' (Robinson, 2014) related to the use of one of the selected high streets. Gender, mobility levels, as well as
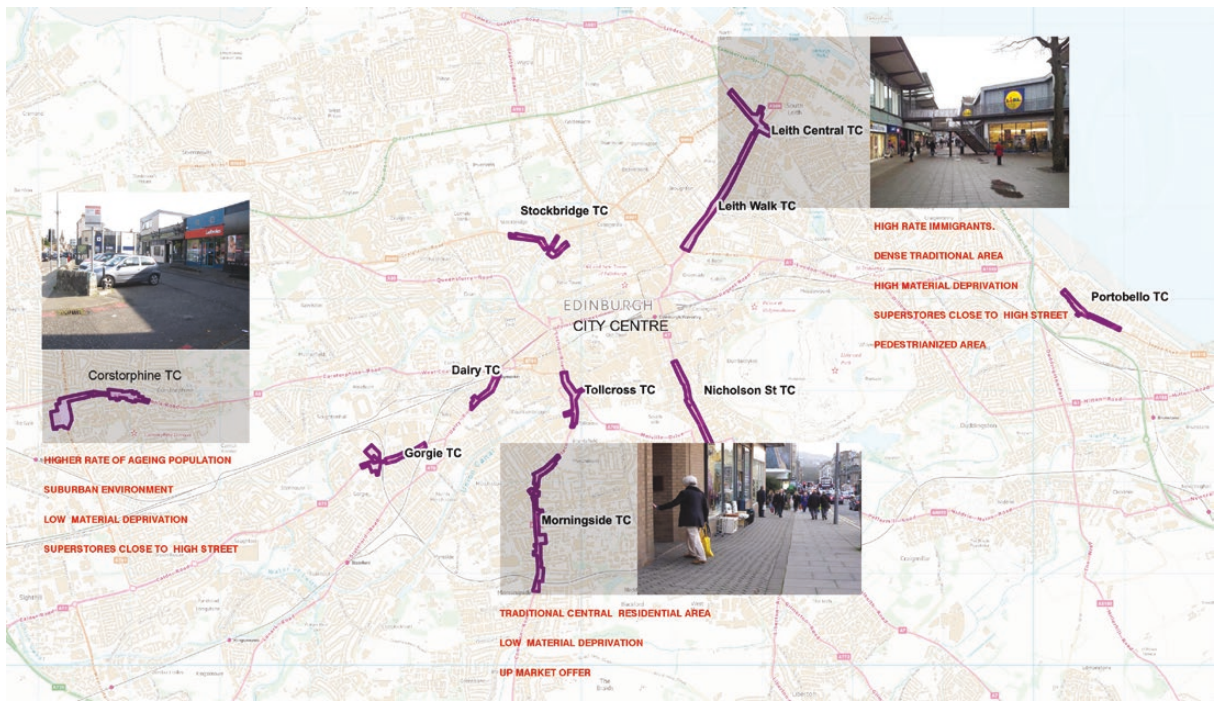
Fig. 2: Map of Edinburgh and overview of the three local high streets chosen as case studies.

socio-economic background were also considered to gain access to different perspectives in relation to the research (Emmel et al., 2007). Referral sampling was also adopted to enrich the sample (Noy, 2008) as well as utilizing local 'guides' (Lofland and Lofland, 2006, pp. 66–67) to liaise with participants in local premises. The sample size was reassessed according to data saturation while the analysis was in progress (Guest et al., 2006). In total, 84 people were finally interviewed ranging between 63 and 96 years old (mean 78 years), and 61% were female. Additional field observations (Zeisel, 1984; Gehl and Svarre, 2013) provided contextual information about the resources available, practices of use and footfall.

Data analysis

Interviews were recorded and transcribed verbatim. Data analysis followed a 'thematic analysis' approach (Braun and Clarke, 2006, 2012; Bryman, 2012; Nowell et al., 2017) to arrange data into main strands of meaning or interest and to respond to the main research questions: in what ways does everyday use of local high streets contribute to older people's well-being; and what are the main features of the local high streets that contribute to their well-being. Transcriptions were coded, developing a framework aiming to identify well-being related resources—from features of the physical environment to social settings and activities. An analytical

framework was then developed around emerging clusters of themes and codes and using NVIVO 11, a qualitative analysis software. A hierarchical distinction was made between themes and more detailed codes—often using participants' terms to strengthen the inductive approach to data, remaining as close as possible to participants' views and their interpretations of reality (Strauss, 1987, quoted by Bryman (Bryman, 2012), p. 573).

The research was granted ethics approval from the Heriot–Watt University Research Ethics Committee.

FINDINGS

Dimensions of well-being at local high streets

The study identified four main dimensions of well-being that local high streets afford an ageing population, namely: social well-being; sense of place; the aesthetic enjoyment deriving from feeling active and a sense of mastery and autonomy in pursuing activities of daily life. Table 1 provides a selection of participant quotes for each key well-being dimension described in the later section.

 1. Social well-being

 Social well-being was a key dimension of well-being afforded by local high streets, with two prominent areas

Table 1: Selection of participant quotes related to the four main well-being dimensions and sub-themes.

Well-being dimension	Participant quotes (MTC, LTC, CTC refer to location)
1.Social well-being	
1a. Meeting people	'If we come here, so many people speak to you!' (Moira, 90, LTC). 'They have set up this men's shed thing trying to get this men's shed going and this is part of it. Men together to do things and this is why we come here' (Crawford, 81, CTC). 'You need something sort of organized, or somewhere you know that people drop in… but it's only once a week, isn't it' (Nora, 63, CTC)
1b. Bumping into people	'You know, it is so good for well-being to be able to get out and meet people, and in [previous neighbourhood] where we were, that was just hardly possible you know, it was different—there were no shops' (Hugh, 72, MTC) 'I usually when I'm out with my husband and I say 'Oh, hello!' and he says 'Who's that?!,' and I say 'I told you last time I saw them but I can't remember!' (Rhona, 86, LTC) 'I was thinking, comparing it [local high street] to [parade of shops] where I live now. On our main street we've only got about half dozen shops, mind you we've got a post office and that. […] We've got all the basics, but there's no… there's nothing there you know? You don't go down there and say, 'Oh, I'll see my friend down there'. It's just basically for shopping, you wouldn't say it contributes to your well-being, you're only shopping there' (Morag, 89, MTC)
1c. Talking to someone	'I like to set up a human link with the shops I buy from […] so I went to the [local household appliances shop] and… I felt he listened to me, so I look very much into personal links […] so I went back a year later, and I bought my radio there, because of the human connection. I guess it's something you're quite aware of and you like to cherish. And I need it, yes, I need it and I think other people do…' (Ayla, 71, MTC). 'I quite like Tesco cause quite lot of the staff are the same… they've been there from when I go so, they recognize you and say hello and things like that, and they're really very helpful with people so' (Donna, 66, LTC)
1d. Passive social interaction	'I see people moving round about me and… I don't speak to them, but I'm involved, whereas, if I were sitting in the house watching the fucking television!' (Hector, 78, LTC). 'I think I would rather walk out and see people up and down the streets than walk out and find there was nothing, nothing there, yes. You feel you are part of a community when you go out whether you know people or not' (Maidie, 87, MTC)
1.Sense of place	'I can go out of my house and within 20 minutes I've seen someone I know a little, not enough to go in their house, or they to me, but to ask how they are, and to get news on people we know… so yes this is my… this is my home, kind of the hub of my life, yes!' (Ayla, 71, MTC) 'Q: do you enjoy coming to the local high street? Yes! Yes! Because it's, it's my home! It's where I've always been!' (Abby, 77, LTC). 'Q: do you visit the local high streets regularly?' 'Yes, it's like going back to see your mother, you know! There's a pull, you know!' (Moira, 90, and Ava, 84, LTC).
1.Feeling active	'So, you come here and then you go out to do some fitness, or… I sometimes come with a friend to do some shopping, and we sort of stroll down […] It's just a nice atmosphere about it.' (Morag, 89, MTC). 'I'm out every day, and make sure I'm out every day. Now I'm overstating that a bit, there must be days when I don't get out. But that's a bad day for me because… it's so necessary for my well-being. […] It doesn't really matter as long as I get out' (Lorna, 91, MTC). 'The motivation for me [to visit local high street], as I said, is actually the exercise, walking here' (Carrol, 74, CTC).
1.Mastery and autonomy	'I quite like to go to shops, it takes me out… it's too easy to sit in. […] It gives you a purpose to get out… would get that today, would get that today …Yes, when I get it, that's good, a good job done!' (Evelyn, 71, MTC). 'It's basically … an easy place to live for us … it's … if we lived … two or three hundred metres in another direction from where we are then it wouldn't necessarily be easy. Because we have to travel that distance all the time to make use of the facilities, so you need to be very close … you know' (Glen, 76, MTC). 'I used to walk down there! But then you'd have to pass them [drug addicts] and as you say they do take their big dogs. But now I just get the bus with my trolley, I get my shopping and I walk to [supermarket] from the back so I don't even walk past these people even though I'm paying three pounds on bus fares. I'd rather do that than past them. You know what I mean' (Gloria, 66, LTC).

of importance: they provide day-to-day opportunities to sustain the basic human need to feel connected, and they support a range of different forms of social interaction. These were ascribed to four main categories

ranked in degrees of interpersonal connection (Lofland, 1998): 'meeting people' (1a) describes those forms of sociability that occur between acquaintances, typically around scheduled activities; 'bumping into people'

(1b) refers to interaction between acquaintances in the street or when using public amenities (Nathan et al., 2012); 'talking to someone' (1c) refers to the verbal interaction older people establish with others in relation to place, such as shop assistants and waiters; and finally, various forms of passive sociability (1d) were found to be afforded by local high streets, from the perception of public life in the street, to 'people watching' and the feeling of being socially involved by just sitting and observing.

2. Sense of place

Sense of place emerged from the distinctive character of the local high streets' urban environment. Sense of place encapsulated a sense of attachment, rootedness, belonging and identity with these locales that in many cases emerged from long standing routines of use (Tuan, 2001; Degnen, 2016; Fang et al., 2016). Memories of the place were re-enacted through daily use and forged into a collective sense of community through social practices. While for a few participants the turnover of shops triggered a melancholic sense of place linked to one's own decline, others preferred to engage in a 'proactive attitude' (Andrews et al., 2013), getting to know the place better as a way to strengthen the link between their well-being and everyday practices at the local high street.

3. Feeling active

Being 'out and about' at the local high street fostered people's sense of feeling active—as the third well-being dimension. This is emphasized by the positive perception of the 'atmosphere' of the place (Thomas, 2008), which was reported to be linked to pleasant feelings of conviviality. This finding corroborated recent research that has found that aesthetically pleasant and vibrant urban environments can have a positive effect on well-being (Neale et al., 2020).

4. Mastery and autonomy

The fourth dimension of well-being emerged in relation to issues of access and use of local high streets and to how they supported feelings of self-competence and personal autonomy in carrying out daily tasks. They are supported by ease of access, walking or by public transport and the possibility for the majority of participants, including those using mobility aids, to do errands independently in a range of shops without needing to drive or rely on other people. While a safe public realm fostered comfort and security inviting people to make use of local facilities, the opposite was

also true. The perception of insecurity can undermine autonomy and well-being in relation to daily routines.

DISCUSSION

The three constructs of SOC resonate with similar concepts in urban design. This makes it possible to connect the psychosocial and cultural foundations of Antonovsky's theory and the four dimensions of well-being that emerged from the data to physical, social and cultural features of the environment—General and Specific Resistance Resources—thus providing opportunities for urban interventions.

SOC and resources on local high streets
Comprehensibility

Antonovsky conceived of comprehensibility as 'the extent to which one perceives the stimuli that confront one, deriving from internal and external environments, as making cognitive sense, as information that is ordered, consistent, structured and clear' (Antonovsky, 1987, p. 16). For most participants, local high streets can be considered as comprehensible and distinctive places within a geography of everyday activities outside home. In local high streets, comprehensibility was found to be sustained by a mix of social and physical features. For example, interviewees frequently referred to proprietors and staff as 'familiar faces', that is a neighbourly presence in the public realm. Small shops and active frontages (see Fig. 3) increased visual complexity and attractiveness, offering 'stimuli' that triggered interest, prompted older people to leave the home and fostered their ability to navigate the high street.

Together with the presence of other people on the street—what in the literature has been referred to as 'crowding out' (Shaftoe, 2008)—active frontages contributed to visual and social complexity and stimulus that has been associated with 'internal security' (Lynch, 1984) and countered the risk of 'boredom' that can erode the benefits of comprehensibility (Antonovsky, 1987). Local high streets also offered a form of pleasurability which can be improved if comprehensibility is enhanced. The limits of this balance are to be found in the way people 'manage' the environment, and are therefore related to the second component of SOC, manageability.

Manageability
Manageability is, according to Antonovsky, how 'one perceives that resources are at one's disposal which are adequate to meet demands posed by stimuli that bombard one' (Antonovsky, 1987, p. 17). Our research found that most interviewees, including those using mobility aids or experiencing early symptoms of cognitive decline, considered local high streets to be

Fig. 3: An attractive shopfront (MTC).

generally manageable as they offered the right balance as opposed to the city centre in terms of people, activities and traffic. Yet, some participants reported the need for improvements to the accessibility of the streetscape and curbing of the impact of traffic on the street environment, which acted as barriers and stressors to accessing and navigating the high street (see Fig. 4).

Finding resources 'at one's disposal' is at the core of Antonovsky's concept, and manageability includes the ability to make use of available services and facilities. Golant (Golant, 2014, p. 9) refers to this as the 'residential mastery zones', places where people 'feel competent and in control of their life and surroundings'. When older people experienced visual, cognitive or mobility problems, this research has evidenced that the clustering of amenities at reasonable walking distance from bus stops made local high streets more manageable; therefore, supportive of everyday errands and activities. In addition, the perceived 'convenience' of the local high street also increased the potential frequency of social encounters, which encouraged everyday use of the public realm. Access to shops, the 'usefulness' of the place (Mehta, 2014, p. 59), promoted social engagement, encouraged use and increases attachment and contributes to meaningfulness (see Fig. 5).

Manageability also means feeling empowered to make decisions about the resources available and is linked to various facets of well-being including sense of autonomy, purpose, and control over one's environment. It is related to the civic and political dimension of the public realm which is the basis for a healthy society (Antonovsky, 1993a) and to 'having a say' (Gilroy, 2008, 2012). While there has been a move to ensure older people's voices are included in the participation process, e.g. through active citizenship as part of the WHO Age-Friendly agenda (WHO, 2007), this has not always led to successful forms of participatory practice (Handler, 2014; Rémillard-Boilard et al., 2017; Buffel and Phillipson, 2018; Menezes et al., 2021). This has been particularly evident for those 'hard to reach' and less engaged: people that experience social exclusion, or have health problems and restricted mobility (Day, 2008; Hockey et al., 2013; Rémillard-Boilard et al., 2017). Public engagement in the three case studies was found to be limited to statutory planning consultations.

Meaningfulness

Meaningfulness is for Antonovsky the most important component of SOC. 'It refers to the extent to which one feels that life makes sense emotionally, that at least some of the problems and demands posed by living are worth investing energy in, are worthy of commitment and engagement, are challenges that are welcome rather than burdens that one would

Fig. 4: Crossing along the main street (MTC).

Fig. 5: The convenience of traditional shops (LTC).

much rather do without' (Antonovsky, 1987, p. 18). Antonovsky's construct refers both to the general understanding and self-confidence in the pursuit of tasks and objectives, and also to the expectations of emotional rewards that life experiences may provide (see Fig. 6).

In this study, self-confidence emerged in relation to being motivated to 'go out and about', welcoming the demands posed by the environment, and people demonstrated being receptive to the emotional rewards that everyday use, social interaction and the aesthetic experience of local high streets offer. Local high streets are meaningful when they are 'useful': capable of satisfying 'basic needs, for shopping, eating, entertainment, and so on, and special needs to gather, display, express, discuss, debate, demand and protest' (Mehta, 2014, p. 58). In addition, the social dimension of local high streets is aligned with the psychosocial dimension of salutogenic theory. Antonovsky stressed the relevance of the impact of society and social conditions on people's health and well-being (Antonovsky, 1993b). By enabling public life through making local town centres more comprehensible and manageable, meaningfulness can promote SOC at a community level fostering in turn individual resilience and well-being (Bauer et al., 2020).

A salutogenic framework for urban design

Table 2 provides a synoptic view of the relationship between the four dimensions of well-being discussed so far, the three salutogenic dimensions of SOC and the resources people can find on local high streets in terms of key urban design concepts. The three key dimensions of SOC express the way in which people make sense and use of the social and physical resources and assets available in the public realm. They also establish overarching qualities of the public realm which provide direction for a range of urban design strategies and interventions. The matrix highlights relevant features (in grey) that can be considered as SRRs in salutogenic terms, and the sub-related aspects of the socio-spatial environment at the intersection of well-being dimensions and SOC sub-constructs. In alignment with these, the table suggests a range of urban design concepts and potential interventions (in white) aimed at improving the SRRs at both policy and practice levels, that in turn can reinforce and sustain the three SOC dimensions fostering well-being and health for an ageing population. Some SRRs and related urban design concepts are linked to various SOC subconstructs and well-being dimensions reflecting the complex nature and the multilayered experience of a place. For example, the table shows that opportunities for social interaction on local high streets are a crucial well-being resource that contributes to both comprehensibility and meaningfulness. Social interaction can be improved by fostering urban vitality with general strategies such as the promotion of land use mix for comprehensibility and more targeted interventions in terms of specific amenities to support meaningfulness.

Fig. 6: Bumping into someone known (CTC).

Table 2: A salutogenic framework for well-being and urban design in local high streets

| | Sense of coherence dimensions | | |
	Comprehensibility	Manageability	Meaningfulness
Well-being dimensions			
Social	Social interaction (bumping into people, talking to staff)	Urban vibrancy (passive social interaction)	Social interaction (meeting people)
	Urban vitality promote land use mix and local shops	Walkability widen pavements and shop front transparency	Urban vitality promote places for informal gathering, support creation of local hubs
Sense of place	Distinctiveness and familiarity small units, variety of shop fronts	Usefulness clustering of facilities and services	Memories streetscape and public realm
	Legibility active frontages	Urban vitality land use mix, local shops	Place-making, robustness conservation of shop fronts and other historic features
Enjoyment and feeling active	Pedestrian environment footpath continuity	Pedestrian environment pavements quality and width	Urban atmosphere cleanliness and greenery
	Accessibility raise street tables at crossings widen pavements	Walkability rebalance pedestrian/vehicle space ratio firm and flat footways, remove clutter seats and public accessible toilets	Place keeping active and well-kept shop fronts pocket gardens I floreal cleanliness
Mastery and autonomy	Distinctiveness and familiarity footpath continuity, variety of shopfronts	Sense of security I 'ownership' actual/perceived security, 'having a say'	Usefulness clustering of facilities and services
	Walkability and vitality raise streets table at crossings widen pavements externalized activities on the street	Walkability, vitality and public participation reassess bus stops location and routes 'crowding out' public spaces promote older people engagement	Urban vitality land use mix, local shops

In grey boxes, the main socio-spatial resources relevant to the public realm of the high street; in white, key urban design concepts and suggested interventions to strengthen the resources in relation to SOC constructs.

The public realm of local high streets is a valuable asset contributing to sense of place and well-being, its key features being distinctiveness, usefulness and the memories attached to it. These could be sustained by promoting place-making policies that preserve and enhance the historic features of shop fronts, buildings and the streetscape in general, and allowing for changes without compromising the character of the place.

The quality of the pedestrian environment and the overall atmosphere of the public realm contribute to making high streets comprehensible, manageable and meaningful, supporting the enjoyment of being out and about and fostering well-being. The pedestrian environment can be made more age-friendly by improving physical accessibility and its overall walkability. This can be achieved by making footways continuous through raising street tables at junctions, widening firmer pavements and rebalancing the ratio of relative pedestrian and vehicle space in the streets. The provision of more seats and access to public toilets would also allow people to enjoy better time spent outside, supporting their ability to manage in the public realm. These and other place-keeping measures such as removal of clutter, improved cleanliness and floral decoration would add to the overall welcoming atmosphere of streets, thus contributing to their aesthetic enjoyment.

Many of these interventions can also improve the imageability and legibility of a place, which can be further improved by reassessing the location of public transport networks in relation to key facilities along the main streets. Making streets more manageable also implies addressing perceived security through crowding out, that is, promoting their

vitality and attracting larger numbers of people into public spaces. Decisions about how to design place should incorporate the genuine participation of older people in the place-making process making sure the 'hard-to-reach' are involved. Eventually, a meaningful high street would be one which older people feel is useful, offering a clustering of shops and services that suit their needs, sustaining their autonomy and independence in later life.

At a theoretical level, the links established between SOC sub-constructs and key concepts in urban design have practical implications for future research and intersectoral interventions between health promotion and place-making.

CONCLUSIONS

This study has presented a novel and holistic frameworks that connects Antonovsky's salutogenic theory of well-being to physical, social and cultural variables of the built environment which can be modified by urban design interventions. The article supports the idea that the promotion of health and well-being in specific urban settings can be pursued by establishing a more direct link between the three main constructs of Antonovski's SOC and key urban design concepts and interventions. The former being the fundamental capacity by which people make sense and use of the social and material resources available, the latter determining the various scales and domains of interventions by which it is possible to improve those same resources.

The applicability of the conceptual framework has been explored in a study of older people in relation to local high streets in the city of Edinburgh with the aim of identifying how these settings can support well-being. The findings evidenced that these urban places offer a range of social, spatial and material resources whose positive impact on older people's well-being can be articulated through the three key dimensions of SOC. As a result, urban design improvements on these socio-spatial features can be considered in salutogenic terms as direct health and well-being promotion interventions on SRRs; and need to be considered in the development of high streets and associated urban design policy/guidelines.

We acknowledge that the theoretical proposition discussed in this article is explorative and presents limitations. In addition, the study was based on a limited choice of case studies excluding other more diverse urban contexts and the sample was mostly self-selected, potentially excluding the voice of others who are 'hard to reach'. The insights gained from this study can be strengthened by applying the framework to different urban contexts, for example, residential settings,

and demographic cohorts, exploring further the links between salutogenic health and well-being promotion policies and the disciplines of urban design and planning.

SUPPLEMENTARY MATERIAL

Supplementary material is available at *Health Promotion International* online.

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ETHICS APPROVAL

The research has received approval from the Energy, Geoscience, Infrastructure and Society (EGIS) School, the Heriot–Watt University Ethics Committee.

CONFLICT OF INTEREST

All authors declare they have no conflicts of interest.

REFERENCES

Alidoust, S., Bosman, C. and Holden, G. (2019) Planning for healthy ageing: how the use of third places contributes to the social health of older populations. *Ageing and Society*, **39**(7), 1459-1484.

Anderson, J., Kai Ruggeri, Steemers, K. and Huppert, F. (2017) Lively social space, well-being activity, and urban design: findings from a low-cost community-led public space intervention. *Environment and Behavior*, **49**(6), 685–716.

Andrews G., Evans, J. and Wiles, J. (2013) Re-spacing and re-placing gerontology: relationality and affect. *Ageing and Society*, **33**(8), 1339–1373.

Antonovsky, A. (1979) *Health, Stress, and Coping*. Jossey-Bass, Hoboken, New Jersey.

Antonovsky, A. (1987) *Unraveling the Mystery Health: How People Manage Stress and Stay Well*. Jossey-Bass, Hoboken, New Jersey.

Antonovsky, A. (1993a) Complexity, conflict, chaos, coherence, coercion and civility. *Social Science and Medicine*, **37**(8), 969–974.

Antonovsky, A. (1993b) Some Salutogenic Words of Wisdom to the Delegates. Göteborg. Available online: Http://www.angelfire.com/ok/soc/agoteborg.html (January 2022, date last accessed).

Antonovsky, A. (1996) The salutogenic model as a theory to guide health promotion. *Health Promotion International*, **11**(1), 11–18.

Atkinson, S., Fuller, S. and Painter, J. (2012). *Wellbeing and Place*. Ashgate, Farnham, UK.

Barton, H., Grant, M. and Guise, R. (2006) *Shaping Neighbourhoods: for Local Health and Global Sustainability*. Routledge, London.

Barton, H., Grant, M. and Guise, R. (2010) *Shaping Neighbourhoods: for Local Health and Global Sustainability.* SPON, London.

Bauer, G. F., Roy, M., Bakibinga, P., Contu, P., Downe, S., Eriksson, M., Arild-Espnes, G. (2020) Future directions for the concept of salutogenesis: a position article. *Health Promotion International*, **35**(2), 187–195.

Ben, S. (1988) *Cities Fit to Live In.* Channel 4 Books, London.

Biggs, S., Tinker, A. and Ipsos-MORI. (2007) *What Makes a City Age-friendly?: London's Contribution to the World Health Organization Age-friendly Cities Project.* Help the Aged.

Bowling, A. and Gabriel, Z. (2007) Lay theories of quality of life in older age. *Ageing and Society*, **27**(6), 827–848.

Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, **3**(2), 77–101.

Braun, V. and Clarke, V. (2012) Thematic analysis. In Cooper, H., Camic, P. M., Long, D. L., Panter, A. T., Rindskopf, D., and Sher, K. J. (eds) *APA Handbook of Research Methods in Psychology*, Vol. **2**. APA, American Pscyhological Association, pp. 57–71. Washington, DC.

Brookfield, K., Ward-Thompson, C. and Robert, I. (2017) The uncommon impact of common environmental details on walking in older adults. *International Journal of Enviornmental Research and Public Health*, **14**(2).

Bryman, A. (2012) *Social Research Methods.* Oxford University Press, Oxford.

Buffel, T. and Phillipson, C. (2018) A manifesto for the age-friendly movement: developing a new urban agenda. *Journal of Aging & Social Policy*, **30**(2), 173–192.

Burton, E. A. and Mitchell, L. (2006) *Inclusive Urban Design: Streets for Life.* Elsevier, Amsterdam.

Canter, D. (1977) *The Psychology of Place.* St. Martin Press, New York.

Carmona, M., Heath, T., Oc, T. and Tiesdell, S. (2003) *Public Places, Urban Spaces.* Routledge, London.

Carpman, J. R. and Grant, M. A. (2002) *Wayfinding: A Broad View.* John Wiley & Sons Inc, Hoboken, New Jersey.

Van Cauwenberg, J., Van Holle, V., Simons, D., Deridder, R., Clarys, P., Goubert, L., Nasar, J., *et al.* (2012) Environmental factors influencing older adults' walking for transportation: a study using walk-along interviews. *International Journal of Behavioral Nutrition and Physical Activity*, **9**(1), 85.

City of Edinburgh Council. (2016) *Local Development Plan.* City of Edinburgh Council. Available online: https://www.edinburgh.gov.uk/localdevelopmentplan

Cold, B. (2001) *Aesthetics, Well-being, and Health: Essays Within Architecture and Environmental Aesthetics.* Ashgate, Farnham, UK.

Collins, C. S. and Cooper, J. E. (2014) Emotional intelligence and the qualitative researcher. *International Journal of Qualitative Methods*, **13**(1), 88–103.

Cresswell, T. (2014) *Place: An Introduction*, 2nd edition. Wiley, Hoboken, New Jersey.

Cushing, D. F. and Miller, E. (2019) *Creating Great Places: Evidence-based Urban Design for Health and Wellbeing.* Routledge, London.

Day, R. (2008) *Local Urban Environments and the Wellbeing of Older People.* University of Glasgow, University of Birmingham, Scottish Centre for Research on Social Justice, Glasgow, Birmingham.

Degnen, C. (2016) Socialising place attachment: place, social memory and embodied affordances. *Ageing and Society*, **36**(8), 1645–1667.

DeMiglio, L. and Williams, A. (2008) A sense of place, a sense of wellbeing. In Eyles J. and William A. (eds) *Sense of Place, Health and Quality of Life*. Ashgate, Farnham, UK, pp. 15–30.

Diehr, P. and Hirsch, C. (2010) Health benefits of increased walking for sedentary, generally healthy older adults: using longitudinal data to approximate an intervention trial. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, **65**(9), 982–989.

Dines, N., Cattell, V., Gesler, W. M. and Curtis, S. (2006) *Public Spaces, Social Relations and Well-being in East London.* Policy Press, Bristol.

Dobson, J. (2015) *How to Save Our Town Centres.* Policy Press, Bristol.

Dooris, M. (2013) Expert voices for change: bridging the silos—towards healthy and sustainable settings for the 21st century. *Health and Place*, **20**, 39–50.

Dooris, M., Poland, B., Kolbe, L., Leeuw, E. D., McCall, D. S. and Wharf-Higgins, J. (2007) Healthy settings. In McQueen, D. V., and Jones, M. C. (eds), *Global Perspectives on Health Promotion Effectiveness*. Springer, New York, pp. 327–352.

Dovey, K. (2009) *Becoming Places: Urbanism/Architecture/ Identity/Power*. Routledge, London.

Emmel, N., Hughes, K., Greenhalgh, J. and Sales, A. (2007) Accessing socially excluded people—trust and the gatekeeper in the researcher-participant relationship. *Sociological Research Online*, **12**(2), 43–55, SAGE.

Eriksson, M. and Lindström, B. (2006) Contextualizing salutogenesis and Antonovsky in public health development. *Health Promotion International*, **21**(3), 238–244.

Eriksson, M. and Lindström, B. (2007) Antonovsky's sense of coherence scale and its relation with quality of life: a systematic review. *Journal of Epidemiology and Community Health*, **61**(11), 938–944.

Eriksson, M. and Lindström, B. (2008) A salutogenic interpretation of the Ottawa Charter. *Health Promotion International*, **23**(2), 190–199.

Evans, J. and Jones, P. (2011) The walking interview: methodology, mobility and place. *Applied Geography*, **31**(2), 849–858.

Ewing, R. and Clemente, O. (2013) *Measuring Urban Design: Metrics for Livable Places*. Island Press, Washington, DC.

Fang, M. L., Woolrych, R., Sixsmith, J., Canham, S., Battersby, L. and Sixsmith, A. (2016) Place-making with older persons: establishing sense-of-place through participatory community mapping workshops. *Social Science and Medicine*, **168**, 223–229.

Fave, A. D., Brdar, I., Freire, T., Vella-Brodrick, D. and Wissing, M. P. (2011) The eudaimonic and hedonic components of happiness: qualitative and quantitative findings. *Social Indicators Research*, **100**(2), 185–207.

Finkelstein, R. (2008) *Toward an Age-friendly New York City: A Findings Report*. Academy of Medicine, New York.

Forsyth, A. (2015) What is a walkable place? The walkability debate in urban design. *Urban Design International*, **20**(4), 274–292.

Forsyth, A., Salomon, E. and Smead, L. (2017) *Creating Healthy Neighborhoods: Evidence-Based Planning and Design Strategies*. Routledge, London.

Gagné, T., Lapalme, J. and McQueen, D. V. (2018) Multidisciplinarity in health promotion: a bibliometric analysis of current research. *Health Promotion International*, **33**(4), 610–621.

Gehl, J. (2011) *Life Between Buildings: Using Public Space*. Island Press, Washington, DC.

Gehl, J. and Svarre, B. (2013) *How to Study Public Life*. Island Press, Washington, DC.

Geller, D. M. (1980) Responses to urban stimuli: a balanced approach. *Journal of Social Issues*, **36**(3), 86–100.

Gilleard, C., Hyde, M. and Higgs, P. (2007) The impact of age, place, aging in place, and attachment to place on the well-being of the over 50s in England. *Research on Aging*, **29**(6), 590–605.

Gilroy, R. (1995) Place and identity: a sense of place. In Massey D. and Jess P. (eds), *A Place in the World? Places, Culture and Globalization*. Open University, pp. 87–132. Maidenhead, UK.

Gilroy, R. (2008) Places that support human flourishing: lessons from later life. *Planning Theory and Practice*, **9**(2), 145–163.

Gilroy, R. (2012) Well-being and the neighbourhood: promoting choice and independence for all ages. In Atkinson, S., Painter, J. and Fuller, S.(eds), *Well-being and Place*. Ashgate, Farnham, UK, pp. 73–87.

Gilroy, R. and Booth, C. (1999) Building an infrastructure for everyday lives. *European Planning Studies*, **7**(3), 307–324.

Glass, T. A. and Balfour, J. L. (2003) Neighborhoods, aging, and functional limitations. In Kawachi, I., and Berkman, L. F. (eds), *Neighborhoods and Health*, Oxford University Press, New York, pp. 303–334.

Golant, S. M. (2014) Age-friendly communities. Are we expecting too much? *Insight IRPP*, Insight no. 5, Montreal, pp. 1–19.

Golembiewski, J. A. (2010) Start making sense: applying a salutogenic model to architectural design for psychiatric care. *Facilities*, **28**(3/4), 100–117.

Gordon, J. (2010) Place matters: the significance of place attachments for children's well-being. *British Journal of Social Work*, **40**(3), 755–771.

Great Britain. Department of Transport, Dft: (2007) *Manual for Streets*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/341513/pdf-manforstreets.pdf (January 2022, date last accessed).

Griffiths, S., Vaughan, L., Haklay, M. M. and Jones, C. E. (2008) The sustainable suburban high street: a review of themes and approaches. *Geography Compass*, **2**(4), 1155–1188.

Guest, G., Bunce, A. and Johnson, L. (2006) How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, **18**(1), 59–82, SAGE.

Handler, S. (2014) A research & evaluation framework for age-friendly cities. *UK Urban Ageing Consortium*, **32**.

Hillier, B. (1996) *Space Is the Machine: A Configurational Theory of Architecture*. Cambridge University Press, Cambridge.

Hockey, A., Phillips, J. & Walford, N. (2013) Planning for an ageing society: voices from the planning profession. *Planning Practice and Research*, **28**(5), 527–543.

Holland, C., Kellaher, L., Peace, S., Scharf, T., Breeze, E., Gow, J. *et al.* (2005) Getting out and about. In Walker A. (ed.), *Understanding Quality of Life in Old Age*. McGraw-Hill International, New York, pp. 49–63.

Idan, O., Eriksson, M. and Al-Yagon, M. (2017) The salutogenic model: the role of generalized resistance resources. In Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M. *et al.* (eds), *The Handbook of Salutogenesis*. Springer, New York, pp. 57–69.

Jacobs, J. (1961) *The Death and Life of Great American Cities*. Random House, New York.

Jones, P., Bunce, G., Evans, J., Gibbs, H. and Hein, J. R. (2008) Exploring space and place with walking interviews. *Journal of Research Practice*, **4**(2), Article–D2.

Jones, P., Roberts, M. ad Morris, L. (2007) *Rediscovering Mixed-Use Streets: The Contribution of Local High Streets to Sustainable Communities*. Policy Press in association with the Joseph Rowntree Foundation.

Kickbusch, I. (1996) Tribute to Aaron Antonovsky—'what creates health'. *Health Promotion International*, **11**(1), 5–6.

Kickbusch, I. (2012) Understanding the rhizome effect: health promotion in the twenty-first century. In Rootman, I., Dupéré, S., Pederson, A. and O'Neill, M. (eds), *Health Promotion in Canada: Critical Perspectives on Practice*. Canadian Scholars' Press, 3rd edition, pp. 308–323.

Koelen, M., Eriksson, M. and Cattan, M. (2017) Older people, sense of coherence and community. In Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M. *et al.* (eds), *The Handbook of Salutogenesis*. Springer, New York, pp. 137–152.

Krupat, E. (1985) *People in Cities: The Urban Environment and Its Effects*. Cambridge University Press, Cambridge.

Lake, A.A. (2018) Neighbourhood food environments: food choice, foodscapes and planning for health. *Proceedings of the Nutrition Society*, **77**(3), 239–246.

Lang, J. T. (2005) *Urban Design: a Typology of Procedures and Products*. Routledge, London.

Lawton, M. P. (1999) *Environmental Taxonomy: Generalizations from Research with Older Adults*. American Psychological Association, Washington, DC.

Lewicka, M. (2010) What makes neighborhood different from home and city? Effects of place scale on place attachment. *Journal of Environmental Psychology*, **30**(1), 35–51.

Lillefjell, M., Maass, R. and Ihlebaek, C. (2017) The application of salutogenesis in vocational rehabilitation settings. In Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M. *et al.* (eds), *The Handbook of Salutogenesis*. Springer, New York, pp. 319–329.

Lindal, P. J. and Hartig, T. (2013) Architectural variation, building height, and the restorative quality of urban residential streetscapes. *Journal of Environmental Psychology*, **33**, 26–36.

Lindström, B. and Eriksson, M. (2010) *The Hitchhiker's Guide to Salutogenesis: Salutogenic Pathways to Health Promotion*. Folkhälsan Research Center, Health Promotion Research, Helsinki.

Lindström, B. and Eriksson, M. (2005) Salutogenesis. *Journal of Epidemiology and Community Health*, **59**(6), 440–442.

Llewelyn-Davies. (2000) *Urban Design Compendium*. English Partnerships, London.

Lofland, J. and Lofland, L. H. (2006) *Analyzing Social Settings.* Wadsworth Publishing Company, Belmont, CA.

Lynch, K. (1960) *The Image of the City*. MIT Press, Cambridge, MA.

Lynch, K. (1984) *Reconsidering the Image of the City.* Springer, New York.

Maass, R., Lillefjell, M. and Espnes, G. A. (2017) The application of salutogenesis in cities and towns. In Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M. *et al.* (eds) *The Handbook of Salutogenesis.* Springer, New York, pp. 171–179.

Macdonald, J. J. (2005) *Environments for Health: A Salutogenic Approach.* Earthscan, London.

Marmot, M. and Allen, J. (2013) Prioritizing health equity. In Leppo, K., Ollila, E., Pena, S., Wismar, M. and Cook, S. (eds) *Health in All Policies. Seizing Opportunities, Implementing Policies*. Ministry of Social Affairs and Health, Finland, 2013.

Mean, M. and Tims, C. (2005) *People Make Places: Growing the Public Life of Cities*. Demos, London.

Mehta, V. (2013) *The Street: a Quintessential Social Public Space.* Routledge, London.

Mehta, V. (2014) Evaluating public space. *Journal of Urban Design*, **19**(1), 53–88.

Menezes, D., Woolrych, R., Sixsmith, J., Makita, M., Smith, H., Fisher, J., *et al.* (2021) 'You really do become invisible': examining older adults' right to the city in the United Kingdom. *Ageing and Society*, 1–20.

Mitchell, L. (2014) A step too far? Designing dementia-friendly neighbourhoods. In Cooper, R., Burton, E. and Cooper, C. L. (eds) *Well-being and the Environment, Wellbeing: a Complete Reference Guide,* Vol. **II**. Wiley, Chichester, UK, pp. 185–218.

Mittelmark, M. B., Bull, T., Daniel, M. and Urke, H. (2017) Specific resistance resources in the salutogenic model of health. In Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M. *et al.* (eds), *The Handbook of Salutogenesis*. Springer, New York, pp. 71–76.

Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M. *et al.* (2017) *The Handbook of Salutogenesis.* Springer, New York.

Montgomery, J. (1998) Making a city: urbanity, vitality and urban design. *Journal of Urban Design*, **3**(1), 93–116, Taylor & Francis.

Morgan, A. and Ziglio, E. (2007) Revitalising the evidence base for public health: an assets model. *Promotion and Education*, **14**(2 Suppl), 17–22.

Moser, G. (2012) Cities. In Clayton and Susan, D. (eds), *The Oxford Handbook of Environmental and Conservation Psychology*. Oxford University Press, Oxford, pp. 203–220.

Moudon, A. V. and Lee, C. (2003) Walking and bicycling: an evaluation of environmental audit instruments. *American Journal of Health Promotion*, **18**(1), 21–37. Lawrence, KS.

Nahemow, L. and Lawton, P. (1973) *Toward an Ecological Theory of Adaptation and Aging. Environmental Design Research: Selected Papers*, Vol. **1**. Hutchinson & Ross, Dowden, Stroudsburg, Pa., p. 24.

Nathan, A., Pereira, G., Foster, S., Hooper, P., Saarloos, D. and Giles-Corti, B. (2012) Access to commercial destinations within the neighbourhood and walking among Australian older adults. *International Journal of Behavioral Nutrition and Physical Activity*, **9**(133), 1–8. Springer, New York.

Neale, C., Aspinall, P., Roe, J., Tilley, S., Mavros, P., Cinderby, S., *et al.* (2020) The impact of walking in different urban environments on brain activity in older people. *Cities & Health*, 1–13.

Norberg-Schulz, C. (1980) *Genius loci: Towards a Phenomenology of Architecture.* Rizzoli, New York.

Nordbakke, S. and Schwanen, T. (2014) Well-being and mobility: a theoretical framework and literature review focusing on older people. *Mobilities*, **9**(1), 104–129.

Nowell, L. S., Norris, J. M., White, D. E. and Moules, N. J. (2017) Thematic analysis: striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, **16**(1), 1–13. SAGE, Los Angeles, CA.

Noy, C. (2008) Sampling knowledge: the hermeneutics of snowball sampling in qualitative research. *International Journal of Social Research Methodology*, **11**(4), 327–344.

Peace, S. M., Kellaher, L. A. and Holland, C. (2006) *Environment and Identity in Later Life.* McGraw-Hill International, New York.

Perez-Wilson, P., Marcos-Marcos, J., Morgan, A., Eriksson, M., Lindstrom, B. and Alvarez-Dardet, C. (2020) 'A synergy model of health': an integration of salutogenesis and the health assets model. *Health Promotion International*, **1**, 11.

Phillips, J., Walford, N. and Hockey, A. (2011) How do unfamiliar environments convey meaning to older people? Urban dimensions of placelessness and attachment. *International Journal of Ageing and Later Life*, **6**(2), 73–102.

Phillips, J., Walford, N., Hockey, A., Foreman, N. and Lewis, M. (2013) Older people and outdoor environments: pedestrian anxieties and barriers in the use of familiar and unfamiliar spaces. *Geoforum*, **47**, 113–124.

Plouffe, L. and Kalache, A. (2010) Towards global age-friendly cities: determining urban features that promote active aging. *Journal of Urban Health*, **87**(5), 733–739.

Rémillard-Boilard, S., Buffel, T. and Phillipson, C. (2017) Involving older residents in age-friendly developments: from information to coproduction mechanisms. *Journal of Housing for the Elderly*, **31**(2), 146–159.

Robinson, O. C. (2014) Sampling in interview-based qualitative research: a theoretical and practical guide. *Qualitative Research in Psychology*, **11**(1), 25–41.

Rowles, G. D. (1978) *Prisoners of Space?: Exploring the Geographical Experience of Older People.* Westview Press, Boulder, CO.

Rowles, G. D. (1983) Place and personal identity in old age: observations from Appalachia. *Journal of Environmental Psychology*, **3**(4), 299–313.

Rowles, G. D. (1993) Evolving images of place in aging and 'aging in place'. *Generations*, **17**(2), 65–70.

Rowles, G. D. (2000) Habituation and being in place. *The Occupational Therapy Journal of Research*, **20** (1_suppl), 52S–67S.

Rydin, Y. (1999) Public participation in planning. In Cullingworth, J. B. (ed.) *British Planning Policy: 50 Years of Regional and Urban Change*. Athlone Press, London.

Rydin, Y. and Pennington, M. (2000) Public participation and local environmental planning: the collective action problem and the potential of social capital, local environment. *The International Journal of Justice and Sustainability*, **5**(2), 153–169.

Sanchez-de-Madariaga, I. and Roberts, M. (2016) Fair shared cities: the impact of gender planning in Europe.

In Sanchez-de-Madariaga, I. and Roberts, M. (eds) *Fair Shared Cities: the Impact of Gender Planning in Europe*. Routledge, London.

Shaftoe, H. (2008) *Convivial Urban Spaces: Creating Effective Public Spaces*. Earthscan, London.

Signorelli, C., Capolongo, S., Buffoli, M., Capasso, L., Faggioli, A., Moscato, U., *et al.* (2016) Italian Society of Hygiene (SItI) recommendations for a healthy, safe and sustainable housing. *Epidemiologia e Prevenzione*, **40**(3–4), 265–270.

Stedman, R. C. (2003) Is it really just a social construction? The contribution of the physical environment to sense of place. *Society and Natural Resources*, **16**(8), 671–685.

Strauss, A. L. (1987) *Qualitative Analysis for Social Scientists*. Cambridge university press, Cambridge.

Taylor, M. (2010) *The Healthy Cities Movement, Working Paper for the Lancet Commission on Healthy Cities* [Unpublished manuscript].

Thin, N. (2017) Happiness and Social Planning: An A to Z of Key Terms and Concepts. Http://www.happiness-lens.ed.ac.uk/happiness-a-to-z/ (January 2022, date last accessed).

Thomas, R. (2008) The power exerted by urban atmosphere over our choice of walk. *Barcelona Walk 21. Barcelone, 8-10 octobre 2008 [CD-ROM]*. Barcelone: Walk 21, pp. 1–8. Available online: https://cressound.grenoble.archi.fr/fichier_pdf/librairie_ambiance/Thomas_2008_Power.pdf

Tibbalds, F. (2012). *Making People-Friendly Towns: Improving the Public Environment in Towns and Cities*. Taylor & Francis, Milton Park.

Tuan, Y. F. (2001) *Space and Place: the Perspective of Experience*. University of Minnesota Press, Minneapolis, Minnesota.

Vernez-Moudon, A. (2003) A Catholic approach to organising what urban designers should know. In Cuthbert A. R. (ed.) *Designing Cities*. Blackwell, Oxford, pp. 362–386.

Völker, S. and Kistemann, T. (2011) The impact of blue space on human health and well-being—salutogenetic health effects of inland surface waters: a review. *International Journal of Hygiene and Environmental Health*, **214**(6), 449–460.

Ward-Thompson, C. (2011) Linking landscape and health: the recurring theme. *Landscape and Urban Planning*, **99**(3-4), 187–195.

Ward-Thompson, C. (2013) Activity, exercise and the planning and design of outdoor spaces. *Journal of Environmental Psychology*, **34**, 79–96.

WHO (1986) *Ottawa Charter for Health Promotion*. World Health Organization (WHO), Geneva.

WHO (1988) *Promoting Health in the Urban Context*. World Health Organization (WHO): Healthy Cities Papers, Geneva.

WHO. (2007) *Global Age-friendly Cities: A Guide*. World Health Organization (WHO), Geneva.

Woolrych, R., Sixsmith, J., Duvvuru, J., Portella, A., Fang, M. L., Menezes, D., *et al.* (2022) Cross-national perspectives on aging and place: implications for age-friendly cities and communities. *The Gerontologist*, **62**(1), 119–129.

Worpole, K. and Knox, K. (2008) *The Social Value of Public Spaces*. Joseph Rowntree Foundation.

Zeisel, J. (1984) *Inquiry by Design*. Cambridge University Press, Cambridge.