

# 1 THE PSYCHOLOGICAL WELLBEING BENEFITS OF PLACE ENGAGEMENT DURING WALKING

## 2 IN URBAN ENVIRONMENTS: A QUALITATIVE PHOTO-ELICITATION STUDY.

### 3 *Abstract*

4 The psychological wellbeing potential of walking in urban environments has received limited attention  
5 from scholars, despite the important public health implications of identifying characteristics of urban  
6 settings that support wellbeing and encourage behaviour change. The study is the first to explore  
7 psychological wellbeing experiences of urban walking framed by theories of restorative environments  
8 and therapeutic landscape. Self-reported psychological wellbeing experiences of walking in urban  
9 settings were investigated with an innovative application of the photo-elicited interview. Fourteen  
10 adults took individual walks in Bristol city centre and photographed their journey; photographs were  
11 then discussed during the interview. Participants reported specific engagements with place related to  
12 personal connections, the identity of place, and sense of community that resulted in psychological  
13 wellbeing benefits. The findings also support the notion that non-natural elements can promote  
14 positive affective and cognitive appraisals. Building on the finding that also urban walking can support  
15 psychological wellbeing, it encourages future research into the health potential of different  
16 characteristics of built environments.

### 17 *Keywords*

18 Urban environments; Walking; Wellbeing; Perceived restoration; Affective appraisals

### 19 **1. Introduction**

20 Identifying the characteristics of urban settings that support psychological wellbeing and encourage  
21 healthy behaviours (such as walking as a key form of mobility) is a priority for research and policy. This  
22 is due to the increasing global urbanisation trends (United Nations - UN, 2014) and poor psychological  
23 wellbeing conditions in Western countries. In fact, research has shown that more than 25% of  
24 European (World Health Organization – WHO, 2015) and 18% of American populations (Nguyen et al.,

25 2018) have poor psychological wellbeing, most commonly suffering from stress and depression. There  
26 is a growing agreement on the notion that physical environments influence health and wellbeing  
27 variables (Gesler, 2005; Kaplan, 1995). Walking is an activity that entails important physical and  
28 psychological wellbeing benefits (Gatrell, 2013), including alleviating psychological health symptoms  
29 (Robertson et al., 2012). In line with this, the health and wellbeing potential of walking in natural  
30 environments has received extensive attention from scholars, and a growing number of studies  
31 indicate that nature contact has important benefits for health and wellbeing (WHO, 2016; Hartig et  
32 al., 2014). Some researchers have also noted that not all natural environments support psychological  
33 health and wellbeing (Bigley, 2013). However, very limited attention has been given to the  
34 psychological wellbeing potential of walking in the urban built landscape. The current research aimed  
35 to address this gap by exploring wellbeing experiences of walking in urban environments, specifically  
36 focusing on the potential of non-natural elements to support wellbeing. We conceptualised wellbeing  
37 as holistic and dynamic concept of “being well” and a positive dimension of mental health (WHO,  
38 2014; Ryan and Deci, 2001). Specifically, similarly to previous contributors (Bell et al., 2015, 2018;  
39 Finlay et al., 2015; White et al., 2013, 2017; Gatrell, 2013), we focused on subjective wellbeing, e.g.  
40 “people's evaluations of their lives on affective and cognitive states” (Diener, 2000, p. 34). An  
41 innovative application of a qualitative photo-elicitation quasi-mobile methodology was chosen to  
42 explore first-person psychological wellbeing experiences of walking in urban settings, thus providing  
43 a thick and rich accounts of experiences (Braun and Clarke, 2006). While a similar methodology has  
44 been used in the exploration of urban experiences (e.g., Dennis et al., 2009), we implemented a novel  
45 application focusing on the study of wellbeing-related urban experiences specifically.

46 In order to advance theoretical debate, the current study integrated two theoretical frameworks on  
47 the psychological wellbeing-promoting potential of environments: restorative environments theories  
48 (Kaplan and Kaplan, 1989; Ulrich et al., 1983) and therapeutic landscape and mobilities (Bell et al.,  
49 2018; Cresswell, 2014; Gatrell, 2013; Gesler, 2005). It is argued that such a multi-disciplinary

50 perspective can offer a theoretical and practical contribution to the research on psychological  
51 wellbeing experiences in urban settings.

## 52 1.1. Restorative environments

53 Restorative environments are defined as those settings that facilitate recovery from a depleted  
54 psychological state. Restorative environments research builds on two leading frameworks: Ulrich's  
55 *Stress Recovery Theory* (SRT; 1983) and Kaplan and Kaplan's *Attention Restoration Theory* (ART; 1989).  
56 SRT (Ulrich, 1983, 1984; Ulrich et al., 1991) defines as restorative those settings that evoke positive  
57 emotions and alleviate negative affect, including stress, negative states, and understimulation. SRT  
58 states that natural environments can be restorative due to the innate inclination of humans towards  
59 nature, which is their evolutionary habitat (Ulrich et al., 1991), and that contact with nature can aid  
60 restoration from stress, but also from under-stimulation or low arousal (Ulrich, 1983).

61 Kaplan and Kaplan's ART (Kaplan and Kaplan, 1989; Kaplan, 1995) focuses on cognitive capacities and  
62 conceptualises restorative environments as those settings that reduce attentional fatigue. While ART  
63 posits that it is the natural environment that supports attention restoration, it also notes that any  
64 setting can potentially support restoration in presence of several restorative properties (Kaplan and  
65 Kaplan, 1989). These include: *being away* (being mentally away from routine or demanding activities),  
66 *fascination* (a necessary but not sufficient condition for restoration: being engaged without  
67 attentional effort), *compatibility* (providing a good fit with one's activities or inclinations), and *extent*  
68 (an environment that is coherent, ordered, and of substantial scope).

69 Building on the focus of SRT and ART on the restorative properties of nature, an extensive body of  
70 research has supported the idea that walking in natural environments is more restorative than walking  
71 in built settings (Roe and Aspinall, 2011; van den Berg et al., 2003; Hartig et al., 2003). However, this  
72 does not necessarily imply that built environments cannot offer restoration. In fact, previous  
73 experimental research studies have found that some built settings can be restorative (Bornioli et al.,  
74 2018a; San Juan et al., 2017; Stigsdotter et al., 2017; Staats et al., 2016; Karmanov and Hamel, 2008).

75 However, there is a lack of studies examining how and why urban environments can be restorative. It  
76 is a key aim of the current paper to address this imbalance by exploring the processes behind these  
77 restorative experiences.

## 78 1.2 Geographical ideas of walking and place

79 The framework of therapeutic landscapes explores how physical settings, social conditions and human  
80 perceptions combine to contribute to healing (Bell et al., 2018; Gesler, 1992). Some of this literature  
81 has focused specifically on walking, with several authors suggesting that walking can be therapeutic  
82 (Gatrell, 2013). These ideas build on the conceptualisation from human geography of place as  
83 container of experiences and centre of meanings (Tuan, 1977; Relph, 1976), rather than mere physical  
84 contexts. Hence, while restorative environments research tends to conceive environments as  
85 impersonal physical *settings*, human geographers conceive these settings as *places*, and put the  
86 emphasis on the ways experiences, associations, and intentions contribute to create a place for an  
87 individual. In addition, restorative environments research tends to consider the bottom-up,  
88 perceptual properties of certain settings to offer restoration – with some exceptions: Korpela et al.  
89 (2008); Ratcliffe and Korpela (2016) – while the therapeutic landscape framework considers the  
90 relational outcomes emerging from the interactions between the individual and the environment  
91 (Conradson, 2005).

92 Despite Gesler (1996) also suggesting that built environments can promote healing, the research field  
93 has mainly focused on rural walking in green (Maddrell, 2013) and blue spaces (Bell et al., 2015;  
94 Coleman and Kearns, 2015). In parallel, specific focus on the healing potential of walking in everyday  
95 urban settings has received only limited attention. Scholars have noted that engagement with urban  
96 environments contributes to reducing negative states of mind (Calvert, 2015), but the physical world  
97 can provide sensory overstimulation (Edensor, 2010) and sometimes be “cognitively demanding”  
98 (Calvert, 2015, p. 146).

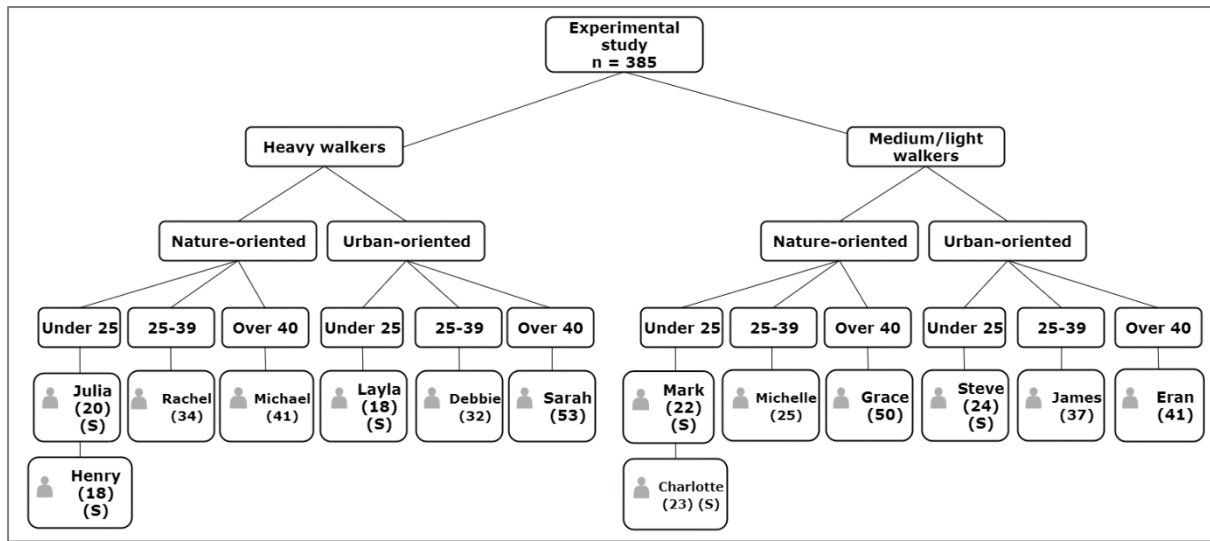
99 Given the general lack of literature on the restorative and therapeutic potential of walking in urban  
100 environments, the current study empirically explored self-reported psychological wellbeing  
101 experiences of walking in urban environments. Therefore, it drew upon and developed the approaches  
102 of restorative environments and the geographical literature on walking, place, and wellbeing. We  
103 argue that such a multi-disciplinary perspective is required to understand the impact of landscapes on  
104 human health and to advance theory and practice. Despite both approaches focusing on healing and  
105 recovery from depleted mental states, there is a growing interest in the potential of ordinary, everyday  
106 experiences and places to contribute to psychological health promotion, and not just healing from  
107 negative states (Bell et al., 2015). The study aimed to (1) inform the theoretical debate on urban  
108 walking and psychological health promotion and recovery, and (2) provide an initial platform of new  
109 avenues of research on restorative and therapeutic urban environments. A qualitative quasi-mobile  
110 photo-elicitation methodology was employed, and aim (3) was to test the effectiveness of this  
111 technique and its usefulness in the field.

## 112 2. Methods

### 113 2.1 Participants and design

114 The study was part of a larger research project examining the influence of built environments on  
115 psychological wellbeing. Fourteen walkers (eight city centre organisation employees and six university  
116 students; eight females) were recruited (see below) from amongst the original sample of 269  
117 employee and student participants who had participated in a quantitative study on walking in urban  
118 environments (Bornioli et al., 2018a). Interviewee ages ranged from 18 to 53 ( $M = 31.8$  years,  
119  $SD = 13.2$ ). Ten were White British, two were White non-British, and two were of Arab ethnic  
120 background. The recruitment strategy was purposeful and aimed to collect a variety of views and  
121 experiences related to urban environments and walking; the sampling frame included walking levels  
122 (heavy/medium walkers – e.g., individuals who walk more/less than 4 times a week for at least 30  
123 minutes), attitudes towards urban and natural environments (nature versus urban oriented), and age

124 (under 25; 26 to 39 years old; over 40), all based on the experimental data. The successfully-recruited  
 125 participants are identified by pseudonyms in Figure 1.



126

127 *Figure 1: Sampling strategy. Legend: (n) = age; (S) = student participant*

128 The methodology consisted of quasi-mobile photo-elicited interviews based on photographs taken by  
 129 participants during individual walks in Bristol city centre. Photo-elicitation methods are a popular tool  
 130 in social (Guell and Ogilvie 2013), health (Frith and Harcourt, 2007) and psychology research (Bagnoli,  
 131 2009), but no published record of previous use in relation to psychological wellbeing experiences of  
 132 urban walking was found when designing the current study. With respect to traditional go-along,  
 133 mobile methods, in which researchers physically travel with research subjects, the quasi-mobile  
 134 photo-elicitation does not disturb the normal walking practice, whilst still allowing the researcher to  
 135 witness the experience via the photographic evidence. Discussing photographs can uncover details,  
 136 memories, and feelings related to in situ experiences (Bagnoli, 2009; Frith and Harcourt, 2007) and  
 137 can aid the reflective processes of both participants and interviewers.

138 One challenge of the photo-elicitation method is that photographs are a *representation* of reality, with  
 139 participants given control over the specific subjects to represent, and therefore the exercise is  
 140 potentially subject to expectation bias. For this reason, the interview followed the advice of previous  
 141 researchers (Frith and Harcourt, 2007) and explored in detail the reasons why participants took

142 specific photographs, what they wanted to make visible, and why. The photographic evidence was  
143 never treated as data *per se*.

144 The research area was the city centre of Bristol, UK. The urban environment includes architectural  
145 styles ranging from medieval, Victorian, to recent-contemporary styles. The urban landscape is  
146 characterised by the Harbourside, a redevelopment of the former historic docks of Bristol which  
147 nowadays offers a traffic-free promenade around the 80 acres of tidal river, with a mix of historic  
148 boats, restaurants, green areas, and residential complexes (Bristol City Council, 2009). Bristol is  
149 recognised internationally as a vibrant centre for hip-hop and street-art culture.

## 150 2.2 Data collection and administration

151 Potential employee participants were sent a recruitment email. Students were recruited through the  
152 University's Psychology Participatory Panel; they were required as part of their degree study to gain  
153 research experience and participate in research studies of their choice.

154 A project information sheet was provided via email prior to participation, presenting the project as an  
155 investigation of the experience of urban walking. Written consent was provided before the interview.  
156 Participants were asked to take a single daytime walking journey of their choice within Bristol city  
157 centre and to photograph "*the things of the surroundings that draw your attention during the walk*  
158 *and make you feel good or bad during the walk*". Subjects were given the option of borrowing a  
159 camera, but all participants decided to use their own equipment.

160 A total of 256 photographs were collected (*Median* = 15.5; *SD* = 6.35). Interviews took place a  
161 maximum of 48 hours after the walking journey, to ensure that memories of the walk were still fresh  
162 in participants' minds. They were asked to share their photographs with the researcher before the  
163 interview, and were then interviewed by the first author in a quiet setting (cafes or a university space).  
164 Interviews started with a participant-led discussion, in which the interviewee had the chance to talk  
165 freely about his/her journey using the photographs. The second phase was led by the researcher and

166 involved specific questions on self-reported wellbeing experiences in and perceptions of  
167 environments during walking, including perceived affective outcomes (e.g.: What were your feelings?  
168 Was it stressful/relaxing/enjoyable? Why?) and perceived cognitive recovery (e.g.: when stressful and  
169 demanding situations were reported by participants: To what extent did you feel refreshed and better  
170 able to concentrate on things?). Questions were open-ended in order to encourage in-depth  
171 discussion. Interviews lasted between 40 and 90 minutes, were recorded with a digital recorder and  
172 transcribed verbatim. The study was approved by the Faculty's Research Ethics Committee.

### 173 2.3 Analysis

174 The transcripts were thematically analysed (Braun and Clarke, 2006) according to a deductive  
175 approach framed by the context of ART (Kaplan and Kaplan, 1989) and SRT (Ulrich, 1983), and of  
176 therapeutic landscape and mobilities (Gatrell, 2013). The software NVivo 10 was used; the first author  
177 conducted the reading and transcribed the interview recordings, thus simultaneously familiarising  
178 herself with the data (Braun and Clarke, 2006). Transcripts were then re-read in order to become fully  
179 'immersed' in the data. Initial coding was conducted by the first author; coding being theory-driven,  
180 initial codes stemmed from ART, SRT, and therapeutic landscape theory. After all relevant codes had  
181 been extracted, themes were developed. Each theme synthesises and describes features of ART, SRT,  
182 and therapeutic landscape theories. Coding and theme development were discussed with the second  
183 and third authors and common qualitative categories of analysis were identified. The interpretation  
184 of the quotes was also discussed with a third independent reviewer in order to enhance the reliability  
185 of the analysis. The independent assessment largely validated the researcher interpretations although  
186 following the feedback some changes in the presentation of the results and in the discussion of specific  
187 affective states were applied. The authors also examined their own roles and influence on the research  
188 by discussing previous professional experiences and respective epistemological positions, and no  
189 important bias was identified.



### 190 3. Results

191 Four themes emerged from the analysis. One theme describes the restorative potential of walking;  
192 the remaining three themes explore the affective and cognitive experiences of place engagement and  
193 the related psychological wellbeing benefits. Participant quotes and photographs are also presented  
194 when they offer an additional layer of complexity around the research focus.

#### 195 3.1 Walking as a restorative practice

196 It emerged from the interviews that walking was perceived as a restorative practice, as it contributed  
197 to self-reported relaxation and positive affect, but also supported perceptions of attention restoration  
198 as it stimulated reflection and feelings of refreshment. Participants described walking as “relaxing”  
199 and engaging. For example, talking about his lunchtime walk, James explained that it made him feel  
200 less stressed and generally improved his affective state:

201 *James: I find walking quite good to de-stress generally. It is good for you. When I came*  
202 *back to work [from the walk] it felt pretty good. I think generally it is good.*

203 Someone also noted that walking stimulated attachments to places; it was in particular details such  
204 as “different boats, and the old buildings”, or “signs of schools, dogs and cats” that made some  
205 participants “stay in touch with the environment”.

206 Walking also stimulated reflection and helped participants to reorganise thoughts, as it is about “doing  
207 nothing” and “getting lost in thoughts” – themes that echo ART’s concept of soft fascination (Kaplan  
208 and Kaplan, 1989). As Sarah noted, “walking helps think things through, ordering your thoughts”, while  
209 James reported:

210 *James: [After the lunchtime walk] I felt my mind was cleared, and I was refreshed.*

211 The natural speed of walking allowed participants to notice detail:

212 *Eran: Cycling is more exciting because you are faster. [When you are walking] you can pay*  
213 *attention to details.*

214 Comparing walking in cities with walking in natural areas, Sarah noted:

215 *Sarah: When walking in Bristol you have more things to look at. It makes it more*  
216 *interesting. Walking in nature, in the woods [...] is not as interesting as walking in cities.*

217 The next sections discuss how relating to place can contribute to this restorative effect.

### 218 3.2 Personal connection

219 Personal memories and habits related to place emerged as elements that offer a positive distraction  
220 and trigger positive affect. First, memories related to specific elements of the urban realm made places  
221 more familiar, which in turn stimulated attachment. For example, James explained that walking in a  
222 particular street made him feel at home:

223 *James: I used to work there, and I registered my kids there, you've got some connections!*  
224 *I feel quite connected to this. I feel at home, when I walk down here.*

225 Even imagined scenarios related to the future made places more familiar and fascinating. Talking  
226 about Bristol Cathedral, where important ceremonies take place, 18-year-old student Henry explained  
227 that he photographed the cathedral as it made him imagine his future university graduation. This  
228 triggered positive affective appraisals (Figure 2):

229 *Henry: That's where the graduation ceremonies take place! It's good to imagine that*  
230 *moment.*



231

232

*Figure 2: Physical places trigger excitement related to future events*

233 Second, for those individuals whose birthplace is not Bristol, socio-cultural references to their own  
234 place of birth or country of origin triggered positive affect and sense of belonging. For example, Layla,  
235 originally from the Middle East, felt happy when a falafel shop reminded her of home (Figure 3). This  
236 triggered positive feelings:

237 *Layla: This falafel shop made me happy. I noticed it, they have products that they sell here*  
238 *and in Egypt, so it makes me feel more at home. It makes me happy.*



239

240

*Figure 3: A falafel shop triggered happiness and nostalgia*

241 Third, routine contributed to attention restoration. Grace discussed aesthetic appraisals and  
242 fascination related to seeing the same shops and people every day (Figure 4):

243 *Grace: This is a tailoring shop [...] and the girl inside looks exactly like this cartoon on the*  
244 *window! She has got beautiful red hair, very fifties style. I don't know her personally, but I*  
245 *could recognise her in the street. She is working on her sewing machine every day. I could*  
246 *stare at the window all day.*



247

248

Figure 4: Familiarity triggers fascination

249 The quotes above by Henry and Layla also highlight attention restoration features. References to ‘back  
250 home’ seemed to trigger feelings of *being away* by remembering objects, people, and childhood  
251 places. Some participants, non-native to Bristol, reported that the city could be a hostile environment  
252 as they were used to smaller urban or rural contexts and that they tended to miss their home places.  
253 For this reason, references and memories related to home could take them away from their routines  
254 and offer a relieving distraction. For instance, Marcus explained that seeing Bristol Cathedral and the  
255 surrounding park triggered interest, happiness, and nostalgia, whilst at the same time reminding him  
256 of his hometown. He discussed how when walking past the area he tends to take some time to take a  
257 mental break from the daily city routine and think of “home” (*being away*):

258 *Marcus: This [area] is absolutely beautiful. It reminds me a lot of home. Whenever I walk*  
259 *past here, I smile. I always slow down, and go around it, instead of along it. Because it*  
260 *reminds me of home [...]. It makes me happy. I’m linking so many things to it. That’s the*  
261 *“missing home” thing that I want to stress. When I was walking my mind was wandering*  
262 *somewhere else and I was getting sentimental all the time.*

### 263 3.3 Engaging with the identity of place

264 Other than personal associations, also engaging and feeling connected with the identity of Bristol had  
265 positive affective appraisals. In some urban places individuals could “feel history”, and this triggered  
266 positive affective perceptions and reflections:

267 *Eran: When you're in the ground, I always feel in this land that there are other people who*  
268 *walked before me, and it's such a different feeling, I think it gives you more than just*  
269 *reading history books. That's a very different feeling, 'cause you can really feel the past.*  
270 *History is not just for the books. When I'm walking, I look at the ground and I ask: "What*  
271 *am I doing here?". What I feel from the ground is very important. Sometimes it makes you*  
272 *feel it's your place.*

273 Participants also described feelings of awe, pride, and sense of belonging triggered by historic  
274 architectures. Some felt “inspired” by the effort put by previous generations to build “majestic”  
275 churches and buildings. In other cases, walking in historic areas made them feel proud of their city;  
276 talking about the Harbourside, Rachel explained:

277 *Rachel: I feel that there is history there, when I'm walking around there I feel proud. I'm a*  
278 *Bristol person, [...] and the Harbourside to me represents part of the pride of being a*  
279 *Bristolian, and I feel proud, when I walk around.*

280 Such awe and sense of pride also emerged in relation to street art, which is a crucial feature of Bristol's  
281 identity:

282 *Sarah: The creativity of Bristol... This huge street art, which must have taken lot of design,*  
283 *lot of planning. [It is] the willingness to do something well, and to the cultural life of the*  
284 *city, I find it quite inspiring.*

285 Other than affective appraisals, it also emerged that participants attributed aspects of ART to place  
286 identity in the urban environment, notably *fascination* and *being away* (Kaplan and Kaplan, 1989).  
287 Participants explained that seeing old buildings and historic artefacts during walking “gave interest  
288 and beauty” to the journey and provided something to notice and to think about. Talking about an old

289 buoy that he photographed (Figure 5), James explained that he was fascinated by the history of the  
290 object:

291 *James: I think where it comes from, and the history behind it, I find it interesting, I quite*  
292 *like history, so I was like “that’s an old buoy”, I like it, it’s sort of intriguing. Because*  
293 *sometimes you’re in a place and there’s not much that marks out that place from another*  
294 *place, so it is good to know the identity of your place.*



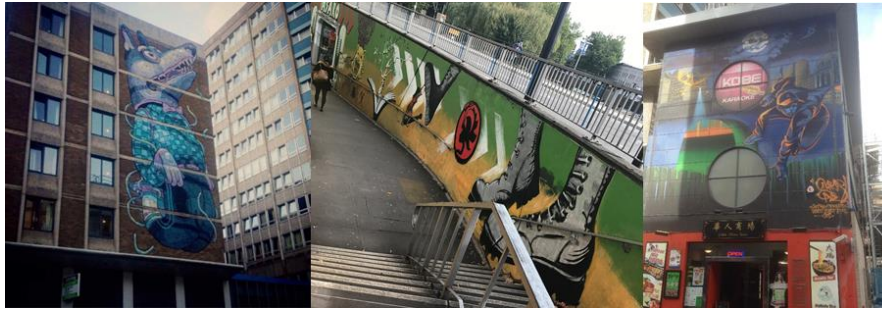
295

296 *Figure 5: Historic elements are symbols of the identity of Bristol*

297 Similarly, participants described how historic and cultural features could trigger positive affective  
298 appraisals and take them away from reality (*being away*) whilst offering a *fascinating* distraction  
299 during their walks:

300 *Steve: It is like... escapism. When you see older stuff, it takes you to another state of mind,*  
301 *takes you away from the present, modern world and distracts you with different, older*  
302 *scenarios that you [are] not used to anymore. It takes you away from the daily routine that*  
303 *you have.*

304 *Eran: Historically Bristol used to be a slavery centre [...]. I like the artwork, because it makes*  
305 *me think of history (Figure 6).*



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307

*Figure 6: Participants' photographs representing interest in street art*

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Finally, the details of historic architectures triggered fascination, imagination, and positive affective

309

appraisals in some participants (Figure 7). For example, Julia commented an old building that

310

stimulated positive affective appraisals and a soft distraction, making her feel engaged and comforted:

311

*Julia: I love this building, it's the way it's like, almost like a triangle like a curve at the end,*

312

*and I think it is so interesting! And I like the patterns of the bricks, it's not just plain, it gives*

313

*you something to look at, and I do find it really appealing. It is powerful because of the*

314

*architecture. It catches me because I then think of the history of it. I start making up my*

315

*head, and my imagination goes. And I just think when something has history, it just feels*

316

*so comforting, because it has got its own story, and that makes it interesting because there*

317

*is so much more to think about.*



318

319

*Figure 7: An old building triggers positive affect and imagination*

320 **3.4 Connection with community (sense of belonging)**

321 Perceiving a sense of community also supported positive affective appraisals and perceived attention  
322 restoration. For example, Rachel explained that seeing a well-kept garden made her smile because  
323 she could see the effort put in by members of the community (Figure 8):

324 *Rachel: It's the second year that they've done it, it's not to my taste, but they have... cared.*  
325 *[...] you've made an effort, so that's what matters. And it makes me smile.*



326

327 *Figure 8: Feeling a sense of community makes walking more pleasant*

328 In addition, seeing people socialising or generally in a good mood triggered positive affective  
329 appraisals. Talking about her walk in the neighbourhood of St Werburgh's, Michelle explained:

330 *Michelle: There is always people around, stuff happening. It feels that people are happy*  
331 *and relaxed, are just chilling. Looking at people enjoying themselves, it is like... wow!*  
332 *Walking there is kind of engaging. It feels like people made an alive system, it feels like*  
333 *their environment, it is a nice dynamic.*

334 Also, the presence of other people socialising, drinking coffee, or busking improved safety  
335 perceptions, thus aiding relaxation and reducing tension. Charlotte reported that when walking in the  
336 Bearpit (an open space underneath the roadway linked to the street-level via several tunnels), where  
337 she generally feels unsafe, she felt comforted by the presence of people drinking coffee,  
338 skateboarding, and chatting (Figure 9):



339 *Charlotte: I don't like the Bearpit, [...] it just makes me feel very uncomfortable. But they*  
340 *have got the store and the café, and there was such a big mix of people [...]. People having*  
341 *lunch break, families, teenagers. I really like the fact that everyone comes together, it is*  
342 *like a small community. [...] it is like knowing that people around me are 'ok people'.*

343 *R: Does it help you feeling more comfortable?*

344 *Yes, definitely. When everyone is there, I feel much more relaxed than when it is just people*  
345 *hanging around.*



346

347 *Figure 9: Presence of people improves safety perceptions in the Bearpit*

348 Similarly, Rachel reported that she does not normally like to walk in the Broadmead shopping quarter  
349 because “there is no colour, no character”. However, music performances and Bristol-produced art  
350 installations made these environments more fun:

351 *Rachel: People have started to do busking, and they started to do performances there, God*  
352 *it's good to have that there to keep the spirit! Because... when the Gromits have been*  
353 *there, and Shaun the Sheep [models of Bristol-produced animation characters], that has*  
354 *made it fun.*

355 Finally, the quote above also highlights that sense of community fostered perceived attention  
356 restoration. First, similarly to sense of history, sense of community generated the restorative property

357 of *extent* (Kaplan, 1995) by giving the idea of an environment where there is sufficiently “much going  
358 on” to occupy one’s mind (from Michelle’s quote, an “alive system”). Second, it contributed to  
359 *compatibility*, as the environment became safer (from Charlotte’s quote) and more pleasant (from  
360 Rachel’s quote), thus supporting individuals’ intentions and activities.

#### 361 4. Discussion

362 The present study explored the psychological wellbeing potential of walking in urban environments  
363 by building on restoration theories (Kaplan and Kaplan, 1989; Ulrich et al., 1983) and on  
364 conceptualisation of therapeutic landscape and mobilities from human geography (Bell et al., 2018;  
365 Gatrell, 2013; Gesler, 2005), to enhance the understanding of the impact of urban landscapes on  
366 wellbeing. To address this aim, a quasi-mobile photo-elicited interview methodology was employed  
367 with 14 adult participants. It emerged that specific engagements with place through urban walking  
368 resulted in positive self-reports of affective and cognitive state improvement, and this occurred  
369 despite the absence of natural features. These findings are in line with Ulrich’s untested idea that “a  
370 lively city street might be [...] therapeutic” (1984, p. 421) and similar suggestions by Kaplan (1995) and  
371 Gesler (1996) on the potential of built environments to support health. In addition, surroundings that  
372 were meaningful to individuals also triggered positive responses. This supports the idea that the  
373 nature of therapeutic and restorative outcomes arising from interactions with environments is  
374 relational (Conradson, 2005) and the idea that restoration may be contingent on additional, person-  
375 related factors, other than the intrinsic qualities of nature (Morton et al., 2017; Ratcliffe and Korpela,  
376 2016, 2018; Bell et al., 2015; Ratcliffe et al., 2013). Four themes were identified as potential  
377 contributors to restoration in the urban setting. First, the walking activity presented some restorative  
378 features. Second, personal memories and references related to place were implicated as offering  
379 positive distractions and triggering improvements in wellbeing. Third, engaging and feeling connected  
380 with the symbolic identity of Bristol supported positive affective appraisals and perceived restoration.  
381 Finally, perceiving a sense of community supported similar positive identifications. The next section  
382 critically discusses the current findings according to the theoretical frameworks applied and the

383 previous empirical evidence (Aim 1). Section 4.2 suggests new research avenues (Aim 2) and discusses  
384 the quasi-mobile photo-elicitation interview method (Aim 3).

#### 385 4.1 Engaging with place can support psychological wellbeing

386 The interview phase revealed that urban walking can be perceived as restorative, as it aided  
387 perceptions of relaxation and stimulated positive affect and engagement, which are other aspects of  
388 SRT in addition to stress recovery (Ulrich, 1984; Ulrich et al., 1991; Collado and Staats, 2016). Urban  
389 walking was also described as “a good way to clear thoughts” and feel refreshed. This finding confirms  
390 previous geographical ideas that walking is a therapeutic practice that offers time to think and relax  
391 (Calvert, 2015; Gatrell, 2013) and echoes the concept of fascination from ART (Kaplan and Kaplan,  
392 1989). The current study has highlighted that also urban walking, similarly to rural walking, can offer  
393 these positive affective appraisals and cognitive perceptions.

394 In addition, engagement and connection with place were found to contribute to wellbeing. First,  
395 personal associations with physical elements triggered self-reported positive affect. Other authors  
396 have highlighted the importance of stimulation in restorative processes (Collado and Staats, 2016;  
397 Staats, 2017) and the current findings demonstrate that urban environments can provide  
398 opportunities to stimulate interest and engagement. Personal associations were also found to  
399 generate a sense of *fascination* and *being away*, as they provided for a soft, effortless distraction that  
400 temporarily removed participants from everyday routines. This was in line with the idea that “people  
401 create, renew and transform meaning in places” (Cresswell, 2014, p. 120), be it personal or collective  
402 meanings related to past and present histories. Furthermore, these findings add to the literature by  
403 indicating that such a connection enhances positive perceptions of the benefits of walking, including  
404 cognitive rest and affective appraisals. While both SRT and ART tend to overlook the role of personal  
405 associations, attitudes, and cognitions in restorative processes, a body of restorative environments  
406 research has recently attested that these elements influence restorative outcomes (Ratcliffe and  
407 Korpela, 2016; Korpela et al., 2008). Similar to Ratcliffe and Korpela’s (2016) findings, in the current

408 study places were found to prompt memories of experiences that happened in situ, thus contributing  
409 to familiarity and comfort. Importantly, it was shown that these restorative perceptions can also arise  
410 in built settings specifically.

411 Second, it was shown that the symbolic nature of place can contribute to wellbeing. Some elements  
412 of the built environment triggered a sense of history in individuals; the sensation of “feeling the  
413 ground” supported perceived *fascination* and *being away* by providing a soft distraction from  
414 everyday routines. The current findings revealed that this is related to the symbolic narrative offered  
415 by some historic elements (Lynch, 1981). By imagining, picturing, and feeling connected to such a  
416 narrative, individuals reported experiencing a fascinating, positive distraction. Sense of history also  
417 appeared to contribute to *extent* on a conceptual level, as it made individuals feel connected to past  
418 ages (in Eran’s quote, “other people who walked before me”, “feeling the past”) or communities (in  
419 Sarah’s quote, feeling “inspired [by] the creativity of Bristol”), thus “to a larger world” (Kaplan, 1995,  
420 p. 174). For some interviewees, walking in historic areas also elicited positive affective appraisals,  
421 notably awe, sense of pride, and relaxation. These positive affective appraisals were particularly  
422 strong for those who considered place as part of themselves, such as Rachel, who considered the  
423 Harbourside as “part of the pride of being a Bristolian”, or Sarah, who felt inspired by the cultural  
424 artefacts of her city. Therefore, these findings highlight the role of place identity in the perceived  
425 restorative and therapeutic experience (Ratcliffe and Korpela, 2016, 2018; Bell et al., 2015; Korpela  
426 and Hartig, 1996) and add that symbolic experiences of place can promote positive affective and  
427 cognitive appraisals also in built environments. Hence, these findings partially explain previous  
428 research that walking in historic centres (Bornioli et al., 2018a; Stigsdotter et al., 2017; Roe and  
429 Aspinal, 2011) and spending time in historic plazas (San Juan et al., 2017; Fornara, 2011) was  
430 restorative, which have previously remained unexplained.

431 Third, social liveliness, community events, and people socialising in public spaces were shown to  
432 contribute to perceived attention restoration and positive affective appraisals. Sense of community

433 contributed to positive affective appraisals such as hedonic tone, curiosity, and engagement. This was  
434 partially related to perceived safety, which the literature indicates as an element that can contribute  
435 to restoration (Gatersleben and Andrews, 2013). While the peace and quietness offered by natural  
436 spaces are identified by previous contributors as crucial features that make nature restorative (e.g.  
437 Nordh et al., 2017), the current study has shown that the social dimension identified by Bell et al.  
438 (2015) with regards to blue settings also applies to psychological wellbeing experiences in urban  
439 environments. Sense of community also contributed to *compatibility*, improving the fit with  
440 participants' activities or inclinations, and to *extent*, as it contributed to the perception of a coherent  
441 and rich environment which constitutes a whole world (Kaplan, 1995). Hence, while natural settings  
442 provide a soft, passive fascination (Kaplan and Kaplan, 1989), urban environments were found to  
443 stimulate wellbeing in terms of active engagement, interest and curiosity. Urban walking can be a  
444 shared experience and support psychological wellbeing, even when walking alone.

#### 445 4.2 Limitations and future research recommendations

446 There are some limitations of the current study that need to be discussed. First, the study findings  
447 were drawn from a sample of a specific city population and may not generalise to different groups.  
448 On the other hand, the in-depth qualitative approach aimed to offer a rich and thick account of  
449 participants' experiences, and this was also aided by the photographic evidence. These findings  
450 potentially generalise more readily to some contexts rather than others; Bristol is a post-industrial,  
451 port city that is fairly typical of British and western and central European cities of this type. Bristol is  
452 also renowned for having a strong and distinctive cultural identity (e.g.: Tallon, 2007), and this was  
453 one of the key features highlighted in participants' reported walking experiences. Hence, the findings  
454 also support the idea that current urban design efforts to maximise diversity and distinctiveness in the  
455 context of globalisation can have positive outcomes for wellbeing. Second, the self-selection biases  
456 associated with voluntary participation must also be acknowledged. However, a purposeful sampling  
457 strategy that represented specific criteria sought breadth in data collection, maximised the range of  
458 experiences recorded for the given number of participants, with both "enthusiastic" and average

459 walkers and both nature and urban-oriented individuals participating in the study. Nonetheless, the  
460 study represents an initial investigation, which will need to be followed by further qualitative and  
461 quantitative work with a wider range of participants before its normative significance can be clarified.  
462 Third, the findings are based on self-reports, rather than on actual health states. Research has shown  
463 that affective and cognitive experiences can have long-term health consequences and positive  
464 emotions are related to lower mortality, lower cardiovascular arousal and general improved health  
465 (Consedine and Moskowitz, 2007); however, the generalisability to actual psychological health will  
466 need to be verified with future research, for example with self-reported experiences of walking  
467 supported by physiological measurements of affective and cognitive variables (e.g., Tilly et al., 2017),  
468 possibly over multiple testing periods. Related to this, it should be noted that the approach that  
469 allowed for freedom of choice on routes taken may have increased the chances of positive experiences  
470 being reported (i.e., participants may have been more likely to choose positive over negative routes).  
471 Nevertheless, while the current paper has explored the psychological wellbeing potential of urban  
472 walking, negative aspects also emerged, and these are discussed elsewhere (see Bornioli et al., 2018b).  
473 Finally, the current findings refer to walking in daylight and thus are not generalisable to night-time  
474 walking. Related to this, data collection took place between August and October, a time of the year  
475 when weather conditions are mild. Hence, it is possible that experiences of walking might differ with  
476 more extreme temperatures and weather conditions.

477 Despite these limitations, the current study has the strength of being the first empirical, participant-  
478 based qualitative exploration of psychological wellbeing experiences of walking in urban  
479 environments framed by theories of restorative environments and therapeutic landscape. Urban  
480 environments are the settings where most individuals spend most of their time; therefore, this is a  
481 topic that has important policy implications for public health domains. Based on the finding that some  
482 built elements can aid psychological wellbeing in terms of affective experiences and perceived  
483 cognitive recovery, future research on the full range of urban settings that can support psychological  
484 health and wellbeing outcomes is warranted (Aim 2). Future quantitative and/or qualitative (including

485 mixed methods) research could further explore the role of architectural styles and characteristics in  
486 the restorative experience, thus extending previous research (Van Den Berg et al., 2016; Lindal and  
487 Hartig, 2013). Second, future research is also warranted on the different types of historic settings that  
488 can support health and wellbeing, also looking at different cultural contexts and different socio-  
489 economic groups. The findings related to awe echo recent research that links awe to wellbeing (Rudd,  
490 Vohs, and Aaker, 2012); future research should explore the characteristics of built settings that  
491 stimulate awe and the links to restorative processes. Given the restorative perceptions discussed in  
492 this study emerged in relation to walking in urban environments with a mix of historic and natural  
493 features, such as the Harbourside, research could explore how different combinations of historic and  
494 natural settings can contribute to restoration – for example, in historic cemeteries (Nordh et al., 2017),  
495 historic parks (Bornioli et al., 2018a), and historic plazas with fountains (White et al., 2010). Third,  
496 future experimental research is needed to assess how psychological health and wellbeing experiences  
497 are influenced by personal factors. This should include measurements of residential location, sense of  
498 community, place attachment, and place identity (see Ratcliffe and Korpela, 2016) to assess the extent  
499 to which these factors influence restoration. Fourth, while the literature on restorative environments  
500 generally indicates that when walking in natural spaces solitude and quietness positively contribute  
501 to restoration (Nordh et al., 2017), the role of sense of community in the restorative experience  
502 emerged as important, and further investigation is warranted. Finally, the results have shown that  
503 engaging with and being aware of the surroundings can aid psychological wellbeing. Future research  
504 could further investigate restorative experiences of *mindful walking* interventions (Teut et al., 2013)  
505 in urban environments specifically.

506 A second strength is that this study tested the effectiveness of the photo-elicited quasi mobile  
507 interview methodology for restorative environments research (Aim 3). The method successfully  
508 contributed to uncovering experiences related to place, with the photographic evidence adding an  
509 additional layer of complexity and contributing to the richness and thickness (Braun and Clarke, 2006)  
510 of the interviews. Interview discussions were crucial to capturing a specific narrative from the

511 photographs, and the photographic evidence supported the interview, also avoiding potential  
512 expectation bias. In addition, reflections were made on potential disruptions to the normal practice  
513 of walking related to the technological task. All participants showed confidence and familiarity with  
514 the technology; every interviewee used his/her own equipment and the exercise was not found to  
515 disturb the walking practice. Finally, reflections were also made on how the photographic exercise  
516 influenced participants' experiences and perceptions. It emerged that the task enabled participants  
517 to consciously identify the object of affect, but never influenced the experience itself, which would  
518 have taken place even in absence of the photo task. As James explained, the process made him  
519 "*consciously think of what [he] was thinking about*", thus revealing the strength of the photographic  
520 task to aid participant reflection. Therefore, the photo-elicitation approach has deepened processes  
521 and practices; the method could be seen as valuable particularly in the restorative environments  
522 research field, where quantitative methods are generally predominant.

## 523 5. Conclusions

524 The current study explored psychological wellbeing experiences of walking in urban environments.  
525 This is the first study framed by theories of restorative environments and therapeutic landscape to  
526 investigate wellbeing experiences in urban walking specifically. It was found that walking in urban  
527 environments can support wellbeing as it can foster positive affective and cognitive appraisals, and  
528 that non-natural elements can promote these perceptions. Personal associations, meanings, and  
529 symbolic connections related with place had a pivotal role, thus confirming the relational nature of  
530 the interaction between individuals and places (Conradson, 2005). The implications for restorative  
531 environments research are that 1) non-natural elements are indeed perceived to have restorative  
532 qualities and promote perceived restoration, and 2) personal factors and experiences contribute to  
533 psychological wellbeing experiences.

534 Several policy recommendations can be suggested based upon the findings of the current study, and  
535 considering urbanisation trends worldwide, these have global relevance. First, policy makers could



536 develop strategies to enhance place attachment and to encourage awareness during walking in order  
537 to enhance the benefits of walking and to encourage more physical activity. This could be achieved  
538 with the support of information plaques and panels in urban environments or by promoting awareness  
539 exercises to take notice of surroundings. Second, the current findings have shown that historic and  
540 identity-related elements in the city can foster psychological wellbeing, thus strengthening the case  
541 to preserve the historic cultural landscape and local cultural heritage and promote identity features.  
542 Third, several urban design tools, including active frontages, safe and pleasant public spaces, and the  
543 promotion of community events, could be used to enhance the psychological wellbeing benefits of  
544 walking.

545

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548        **7. References**

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