

Supplementary Material 3

GRIPP2 Short Form

Section and topic	Item	Reported on page No
1: Aim	<p><i>Report the aim of PPI in the study</i></p> <p>The aim of public involvement in this project was to inform the study processes, development of a policy- and practice- influenced typology of green and blue spaces and to co-produce policy recommendations.</p>	
2: Methods	<p><i>Provide a clear description of the methods used for PPI in the study</i></p> <p>Public involvement for this project involved engagement with policy-makers, planning professionals from each of the local government ‘unitary authorities’ in Wales, representatives from arm’s length bodies (Natural Resources Wales, Public Health Wales, Sports Wales, Office for Future Generations), researchers, and individuals involved with charities and local park groups as stakeholders in informing the study processes and the development of the typology and study recommendations.</p> <p>Early-stage plans for data linkage and analyses were presented and discussed with both the University of Exeter Health and Environment Public Engagement group (HEPE, https://www.ecehh.org/about-us/engagement/) and the SAIL Databank Consumer Panel for Public Involvement in Research (https://saildatabank.com/about-us/public-engagement/) at meetings in June 2018.</p> <p>We then held a semi-structured, in-person PI workshop with stakeholders that manage/maintain GBS and encourage their use in</p>	

	<p>Wales in October 2018 to inform the study processes and the development of the typology.</p> <p>We presented the complex findings related to differences in the association between time outdoors and WEMWBS score by deprivation specifically for discussion with the HEPE PPI group (in August 2021) to obtain a wider perspective for interpretation.</p> <p>Finally, we held an hour-long webinar with more than 100 participants from Natural Resources Wales in September 2021 to disseminate our study findings with the intention that participants could help to develop the study recommendations.</p> <p>Also relevant to public involvement is the work done with the steering group. The GBS steering group consisted of three researchers who were independent from the research team, namely an expert on population health and one on geography and data linkage, two policy experts, from Natural Resources Wales and Natural England and a public involvement representative from the charity MIND (who attended our final steering group only). Five steering committee meetings were held in March and September 2019, March and November 2020 and June 2021. The steering committee provided valuable inputs, particularly in relation to the design and interpretation of our analyses.</p>	
<p>3: Study results</p>	<p><i>Outcomes - Report the results of PPI in the study, including both positive and negative outcomes</i></p> <p>Attendees at the early-stage discussions with the University of Exeter HEPE group and the SAIL Databank Consumer Panel expressed support for the value of addressing our research questions, and the importance of focus on mental health and well-being outcomes. They did not have any concerns around anonymised data linkage approaches for the purposes of this research.</p>	

The aim of the in-person PI workshop in October 2018 was to co-produce a typology for both urban and rural GBS relevant to the UK. This should be applicable primarily for this study, but potentially translatable to other locations, while addressing the stated need for typologies which facilitate cross-disciplinary and inter-sectoral work. Twenty-seven stakeholders participated in the workshop where small group discussions on key topics were facilitated, and feedback on the typology was sought.

Key findings included: wide variations in definitions between studies, and the lack of evidence of which spaces/social factors of spaces are related to health outcomes impacts. We also found that there was little information on how stakeholders can advocate for change. Stakeholders were concerned that guidelines can overlook fine-scale inequalities, the need include diverse forms of GBS e.g. green corridors, the desire to include quality, and particular qualities/characteristics in GBS typologies that are important to them as individuals, such as park benches. Lay participants had initial concerns about the extent of data available to the project, but these were allayed by discussion with the research team about how privacy is protected, and how project staff have been trained to work with these data.

We presented our findings from the cross-sectional analysis (reported in Chapter 7) to a public involvement group. In that chapter we found that the deprivation gap in WEMWBS narrowed by almost half for those spending 4 hours/week outdoors on visits to GBS versus compared with those spending no time outdoors on visits to GBS. However, while WEMWBS scores continued to climb steadily for those in the non-deprived group to the capped maximum of 7 hours/week, for those in the deprived group, WEMWBS scores plateaued and declined above 4 hours/week.

During discussions with the HEPE Group in August 2021, it was suggested that many of those reporting longer durations could be dog owners and walking them could be (for some) more of a chore than a choice, and this may be different between deprived and non-deprived

	<p>groups. Discussants also suggested that differences between deprivation groups at these higher levels of time outdoors could potentially also be associated with differences in time pressures associated with occupations, caring responsibilities and so on, making 'obligatory' time outdoors less beneficial for those whose lives are under greater time pressure. Additionally, although they are spending time outdoors, those in material deprivation may not have access to quality environments close to home, necessitating a drive if they have access to a car, or dog walks through less attractive urban environments without gaining possibly greater well-being benefit of high-quality GBS.</p> <p>Attendees at the NRW webinar encompassed a range of staff from across the various NRW Directorates, including Operations (e.g. recreation site managers, foresters), policy advisors (who lead on advising the Welsh Government on health and recreation issues); regional 'people and places' advisors (who deliver advice to cross-agency Public Service Boards and Area Statements); and transdisciplinary evidence specialists.</p>	
<p>4: Discussion and conclusions</p>	<p><i>Outcomes - Comment on the extent to which PPI influenced the study overall. Describe positive and negative effects</i></p> <p>Our PI strategy was successful in engaging a selection of stakeholders with a large policy and practice reach, who provided an incredibly helpful sounding board to test analysis plans and emerging findings, and to develop recommendations.</p> <p>By incorporating stakeholder perspectives we were able to create a more nuanced, nested GBS typology that can be applied to a wide range of environmental data sources to categorise both urban and rural GBS). It will be particularly useful for research (ours and others) that promotes understanding of the type and distribution of GBS that populations want, how different groups may be affected and benefit in diverse ways from distinct types of GBS and which are most beneficial to their health and wellbeing.</p>	

	<p>Based on webinar feedback, we have designed 1 page plain English summaries of our findings for policy and practice audiences and are exploring the possibility of adding our research findings to the Natural Resources Wales 'environment portal', which hosts information to drive policy and decision making.</p> <p>The project was successful in engaging policy makers and researchers at different stages of our research process. However, we were less successful with engaging third-sector mental health stakeholders on our steering group, in part because of staff changes in stakeholder organisations restricting opportunities for building relationships, and due to increasing pressures and workloads experienced by those working in mental health charities due to the COVID-19 pandemic.</p>	
<p>5: Reflections/critical perspective</p>	<p><i>Comment critically on PPI input in the study, reflecting on the things that went well and those that did not, so others can learn from this experience</i></p> <p>Our PI approach was successful in engaging policy makers and researchers with a large policy and practice reach at different stages of our research process. Engagement with the HEPE PPI group has been incredibly helpful in bringing a wider perspective to the interpretation of our findings.</p> <p>The workshop raised excellent suggestions which we would have liked to include. Suggestions of including entrances to green spaces were accommodated, but the inclusion of park benches and public toilet locations specifically were not possible within this previously collected data. The added dimension of time adds greatly to this complexity. In short, the potential for us to tailor the previously collected routine data to include the items suggested by the public involved in this study were limited; either the data does not exist, or national coverage was not available. This has highlighted challenges for future research and data collection to build on..</p> <p>Restrictions in place because of the COVID-19 pandemic meant that</p>	

a second in-person workshop, designed to co-develop the study recommendations had to be run online. However, in switching to online delivery, we were able to reach a larger audience, with more than 100 participants from the various Natural Resources Wales' Directorates. We also took the opportunity provided by an online event to record short presentations by Early Career Researchers (ECRs) outlining our results which we will be able to re-use in other forums, an efficiency which will increase both the reach and potential impact of the project, and the profile of the ECRs involved.

We were less successful with engaging third-sector mental health stakeholders on our steering group. We only had attendance at our steering group from our MIND representative at one final meeting. We noted that the detailed nuances in the data that we presented were not very accessible for a practitioner. Earlier involvement from practitioners may have enabled us to disseminate our results more effectively to a wider audience. Whilst the COVID-19 pandemic undoubtedly put additional pressures on these organisations, future research projects should consider how to provide opportunities for engagement for those whose workload may only allow for ad-hoc engagement, or engagement with shorter meetings or those that are in different formats.