Revista de Estudios Andaluces (REA) | Núm. 39, febrero (2020) | e-ISSN: 2340-2776.
https://dx.doi.org/10.12795/rea.2020.i39 | © Editorial Universidad de Sevilla 2020
https://editorial.us.es/es/revistas/revista-de-estudios-andaluces
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Blue Spaces as Resources for Health and Wellbeing: Survey Comparisons of Indoor and Outdoor Settings from Ireland

Los Espacios Azules como Recursos para la Salud y el Bienestar: Comparaciones entre Encuestas sobre Entornos Interiores y Exteriores de Irlanda

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INFO ARTÍCULO

Recibido: 09/05/2019
Revisado: 05/11/2019
Aceptado: 17/11/2019

KEYWORDS

Health
Wellbeing
Blue Space
Canals
Beaches
Swimming Pools

ABSTRACT

There has been an upsurge of recent interest in blue spaces, especially evident in nature-based research associated with the health and wellbeing potential of oceanic, coastal and inland waters. This paper documents Irish studies that compare indoor and outdoor blue spaces for different user communities and practices. The studies employ qualitative methodologies including interviews, visual surveys and go-alongs, to enact a form of 'place capture' in three different types of blue space. The first study, based at an indoor swimming pool in West Dublin, identifies the benefits and value of swimming as a healthy practice, from three different cohorts of respondents (n=79). The second study of a single canal space in the Midlands looks at the benefits identified by mixed regular users, including Park Runners, of the blue-ways alongside the Royal Canal (n=12). A third study captured comparative in-situ user-perspectives from two very different blue spaces, canal and beach, in two locations in Central/South Dublin (n=8). What emerges from the studies are complex assemblages of identified therapeutic outcomes in both health and wellbeing terms, reflecting diverse user perspectives from different types of blue space. The accounts reflect the literature in identifying both health-promoting and health-reducing dimensions of blue space experience, as well as commonalities and variations in how users explicitly value blue spaces settings. Key additional themes include, self-discovery, socialisation and recovery that hint at the potential of qualitatively focused 'emplaced blue community' studies to underpin and inform public health policy and promote health resilience in Ireland and beyond.

PALABRAS CLAVE

Salud
Bienestar
Espacio Azul
Canales
Playas
Piscinas

RESUMEN

En los últimos años se ha producido un aumento del interés en espacios azules, especialmente evidente en la investigación basada en la naturaleza asociada con el potencial de las aguas oceánicas, costeras e interiores para mejorar la salud y el bienestar. Este artículo aborda estudios irlandeses que comparan espacios azules interiores y exteriores para comunidades de usuarios y prácticas diferentes. Los estudios emplean metodologías cualitativas que incluyen entrevistas, observación y visitas, para llevar a cabo una especie de 'captura de sitio' en tres diferentes tipos de espacio azul. El primer estudio, realizado en una piscina cubierta en Dublín Oeste, identifica los beneficios y el valor de la natación como práctica saludable, de tres

DOI: https://dx.doi.org/10.12795/rea.2020.i39.01
Formato de cita / Citation: McNamara, M., Murphy, A., Dowler, F. y Foley, R. (2020). Blue Spaces as Resources for Health and Wellbeing: Survey Comparisons of Indoor and Outdoor Settings from Ireland. *Revista de Estudios Andaluces,* 39, 8-22. https://dx.doi.org/10.12795/rea.2020.i39.01
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diferentes cohortes de población encuestada (n=79). El segundo estudio, de un único espacio de un canal en las Midlands, analiza los beneficios identificados por usuarios habituales mixtos, incluidos *Park Runners* (corredores de parque), de los *blue-ways* (vías azules) al lado del Canal Real (n=12). Un tercer estudio, recoge las opiniones de los usuarios in situ de dos espacios azules muy diferentes, el canal y la playa, en el centro y sur de Dublín (n=8). Lo que se desprende de estas investigaciones son complejos grupos de resultados terapéuticos identificados tanto en términos de salud como de bienestar, que reflejan las diversas perspectivas/valoraciones de los usuarios de los diferentes tipos de espacios azules. Así, este trabajo recoge aportaciones a la literatura científica sobre la identificación de las dimensiones de la promoción de la salud y de la reducción de la misma atendiendo al nivel de la utilización de los espacios azules, así como los puntos comunes y las variaciones en la forma en que los usuarios valoran explícitamente los espacios azules. Temas claves adicionales que subyacen en este trabajo hacen referencia además al autodescubrimiento, la socialización y la recuperación como elementos que permitan entrever el potencial de estudios cualitativos que se dirijan a las comunidades azules de usuarios de un lugar, con la finalidad de sustentar e informar a la política de salud pública y promover la resiliencia de la salud tanto en Irlanda, como en otros países.

1. INTRODUCTION

1.1. Emerging Geographies of Blue Space

There has been an upsurge of interest in blue space research in the past decade (Brown, M. and Humberstone, B., 2015). This has been especially evident in nature-based research where the health and wellbeing potential of a range of different types of oceanic, coastal and inland waters has been identified and explored (Foley, R. *et. al.*, 2019; Foley, R. and Kistemann, T., 2015; White, M. *et. al.*, 2010). In methodological terms a recent review identified that there has been a relative dearth of structured quantitative studies (Britton, E. *et. al.*, 2018). Qualitative or mixed method studies have been more common and contain a mix of both instrumental and narrative-based approaches to study the health and wellbeing benefits (Grellier, J., *et. al.*, 2017). In addition, there has been a slow but steady increase across all several branches of human geography of research on specific blue practices, including those associated with sport and everyday leisure such as; swimming (Foley, R., 2017); diving (Straughan, E., 2012); kayaking (Mutz, M. and Müller, L., 2016); sailing (Brown, M., 2019) and surfing (Evers, C., 2015).

These individual studies are slowly beginning to consider health and wellbeing and how it emerges differently in different types of blue space (Foley, R. and Kistemann, T., 2015). In addition, there is an increasing interest in how individual users describe the health promoting value of those practices within different blue space/settings and types (Grellier, J., 2017). In this paper we explore a suite of small Irish-based studies, focused specifically on what different types of spaces - namely a swimming pool, a rural canal and an urban canal and beach - meant to people who visited and used them in terms of their health and wellbeing. In keeping with current hybrid methodological approaches, qualitative, ethnographic and visual methods were used across the studies. While they are quite different spaces, they do represent a continuum in terms of activity; from physical (swimming), through physical/mental (rural canal) to mental only (canal/beach comparison). Equally the settings vary from indoors (artificial) to a quiet canal stretch (natural/managed) to urban canal and beach space (natural/wilder). What the paper will focus on are the similarities (despite different types and forms of blue space) and differences (based on different user perspectives), that emerge from an assemblage of emplaced responses. Yet in putting them together, we would see the more controlled indoor space of the swimming pool as providing just that, a type of control against the other two spaces to see what commonalities emerged. In addition, the immersion in the swimming pool was literal, as opposed to a more visual/observed perspective from the canals and beach spaces. We would suggest there is a value to comparative studies alongside more common single site or cohort studies and are also aware that such nature-based research studies focusing on the health benefits of green and blue space are also developing within municipalities across Andalucia (Garrido-Cumbrera, M., *et. al.*, 2018). Finally, such multi-user and multi-spatial studies can also add to the evidence base for the value of both indoor and outdoor blue spaces to human health and wellbeing (Foley, R., *et. al.*, 2019).

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1.2. Health-enabling Practices in Blue Space

Water is not merely a prevalent feature of therapeutic landscapes, but a potentially salutogenic environmental element in its own right (Völker, S. and Kistemann, T., 2011). Relationships between water, health and place were central to early therapeutic landscapes research (Williams, A., 2007). This early research was mainly concerned with the healing properties of 'extraordinary' places of healing such as Lourdes and Bath (Gesler, W., 2003). More recently times researchers have extended the therapeutic landscapes concept to incorporate everyday green and blue spaces, such as parks, coasts, rivers and lakes (Foley, R. and Kistemann, 2015; White, M., *et. al.*, 2010). Whilst there is substantial literature emphasising the potential of green space environments in promoting health and wellbeing (Mitchell, R., 2013), there has been less research on the potential of blue space environments, though this is changing rapidly (Grellier, J., *et. al.*, 2017; Bell, S., et al., 2018). The term 'healthy blue space' coined by Foley and Kistemann (2015: 158) refers to, "health-enabling places and spaces, where water is at the centre of a range of environments with identifiable potential for the promotion of human well-being". Most blue space research has, as one might expect, a strong focus on natural generally outdoor spaces, such as beaches, coasts, rivers, lakes, reservoirs, canals; as well as smaller micro-spaces such as ponds, fountains and streams (Britton, E., *et. al.*, 2018; Grellier, J., *et. al.*, 2017; Pitt, H., 2018). While earlier studies focused on single settings, cohorts or practices, there has been an increased interest in comparing the relative value of different types, uses and users of blue spaces, including against green spaces (Amoly, E., *et. al.*, 2014; Völker, S. and Kistemann, T., 2015). Even so, there is insufficient research on urban and inland waterways such as canals, docks and rivers to gain a more comprehensive understanding of the therapeutic and potentially therapeutic effects of different types water spaces (Völker, S. and Kistemann, T., 2011; Pitt, H., 2018). Finally, beyond some specific work on indoor swimming, the idea of indoor blue space has been only lightly explored (McLauchlan, A., 2017; Ward, L., 2017).

There is a long-standing belief in the ability of coastal environments to restore mental and physical well-being (Gascon, M., *et. al.*, 2017). Bell, S. et al. (2015: 58) found that the coast had the potential, "to promote feelings of renewal and restoration", and that emotional attachments to the coast appeared to develop through "the accumulation of diverse individual and/or shared coastal experiences". This is consistent with environmental psychology literature on attention-restoration theory and correlates with research findings suggesting that being in a natural environment is both restorative and beneficial for cognitive function (Gidlow, C., et al., 2016). Beach environments provide an opportunity and suitable location to exercise and get active, which are essential for overall human health. They also provide essential health benefits in the way of increased family and social interaction and a positive and fun-based engagement with nature (Ashbullby, K., et al., 2013). Blue space research on increased physical activity (PA) has become increasingly common across not just geography but also environmental psychology and sports science, where different measures of PA including physiology and activity tracking provide direct quantitative evidence as to those benefits in terms of steps, calories burnt and enhanced physiological development (Calogiuri, G. and Chroni, S., 2014).

Water can also be understood as an activity space with social dimensions within which health-enhancing outcomes are highly relational and dependent upon individual perspectives and experiences (Duff, C., 2011). Research from environmental psychology identified differential health outcomes associated with attention-restoration, stress-reduction, place-fascination and other measures of wellbeing (Korpela, K., *et. al.*, 2014). The restorative power of water is linked to its aesthetic qualities and its capacity for creating multi-sensory experiences; people attach importance to water-related elements such as sounds, colours and movement (Völker, S. and Kistemann, T., 2015; White, M. et al., 2010). That idea of a very direct and intimate sensing of blue space is a developing idea and is also relevant to the findings in this study (Foley R., *et. al.*, 2018). The sound of breaking waves, as well as the sight of boats bobbing up and down, and the various patterns created by natural light hitting off the water provide "an opportunity to slow down and gain a sense of being present (and attentive to) the world" in an otherwise hectic twenty-first-century lifestyle (Bell, S., et al., 2017: 100). More recent research, often using in-situ and direct accounts from the water and linked to activities such as swimming, surfing, diving or canoeing, all attest to specific embodied and emotional experiences in the water that promote direct and indirect wellbeing benefits from affective practice (Foley R., *et. al.*, 2019).

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Finally, much blue space research has had a focus, understandably, on outdoor nature. This makes sense in terms of social prescribing, but overlooks other everyday places of health and physical activity. In addition, different parts of the world experience very variable weather, which is often a deterrent to the use of outdoor spaces (Bell, S., Leyshon, C. and Phoenix, C., 2019). As such, there has been little or no work on artificial or built environment settings and such studies attest even to the value of being beside or alongside blue spaces, even in everyday activities such as commuting (Garrett, J., *et. al.*, 2019). This is even more so in relation to indoor spaces such as swimming pools and larger leisure centres, to open up more artificial and designed blue spaces to identify similarities and differences in responses and which place/practice specific preferences might emerge from such comparative work. Finally, recurring strands in recent research are contested and negative responses to blue space settings and activities. Not all blue spaces are very blue, clean or safe and there are a number of studies that attest to various fears, risks and phobias that are triggered by and in such spaces that, as Pitt notes from her canal-based studies, 'muddy the waters' (Foley R., *et. al.*, 2019; Pitt, H., 2018). Developing this review, the focus of our research is on uncovering different user perspectives from both indoor and outdoor blue spaces, that are realistic about a mix of positive/negative responses, but that identify very clear health and wellbeing benefits. In addition, new themes emerge from the research included self-discovery, socialisation and recovery; all of which show that each of the blue spaces have considerable value as resilient public resources. Recognising that value and how people use very different blue spaces in very different ways is important to inform policy and promote the maintenance and development of such spaces for the public good.

2. METHODOLOGY

2.1. Place Capture: In-Situ approaches and Study settings

The studies employ qualitative methodologies incorporating participant observation, focused ethnographies and directed emotional mapping to enact new forms of 'place capture' and are part of an ongoing suite of 'affective practice' studies from the Geography Department at Maynooth University (Foley, R., 2017; 2018a). Each study was focused on specific blue spaces namely; a swimming pool, a stretch of canal (two different examples) and a beach. They were chosen in part to provide contrasting settings but also as locations for the active gathering of research material 'in place'. In addition, the specific choice of one indoor setting (swimming pool) was to use it as an informal 'control' against the other studies from natural outdoor settings (canal and beach). The idea of 'place capture' is based on the understanding that 'go-along' approaches that bring the researcher and respondent closer to the place of study, and to be directly immersed in it, produce new forms of knowledge (Spinney, J., 2015). Indeed as Spinney notes, such methods are also informed by the desire to find better ways to; 'research and represent the fleeting, unconscious and mobile' (Spinney, J., 2015: 232). While primarily qualitative, each of the studies had slightly different forms of immersion implicit in that capture and contained some additional quantifiable evidence as well. All three studies included interviews, formal and semi-structured surveys but were all carried out 'in-situ' at the swimming pool, canal and beach spaces (Figure 1). All studies also included some level of participant observation, slight at the swimming pool, more direct at the comparative canal/beach study, where some additional visual ethnography tools were used as well. Fuller descriptive statistics for the studies are included in Table 1 below. In addition the swimming pool study was carried out within the broad oversight of Swim Ireland, a national agency in charge of competitive and leisure swimming, while the inland canal study has links to national policy on public health under the local authority strand, Healthy Cities and Counties, of the national health promotion agency, Healthy Ireland.

The first study was based at an indoor swimming pool, Sports & Leisure Ballyfermot, in West Dublin, and was aimed at identifying the benefits and value of swimming as a healthy practice, from three different cohorts of respondents (event-targeted, parents and general swimmers; n=79). Cohort 1 included respondents (n= 27) who were doing specific training for a 'Swim for a Mile' event to develop and improve their swimming strength and endurance. Cohort 2 involved parents with children (n=31) involved in Learn to Swim pro-

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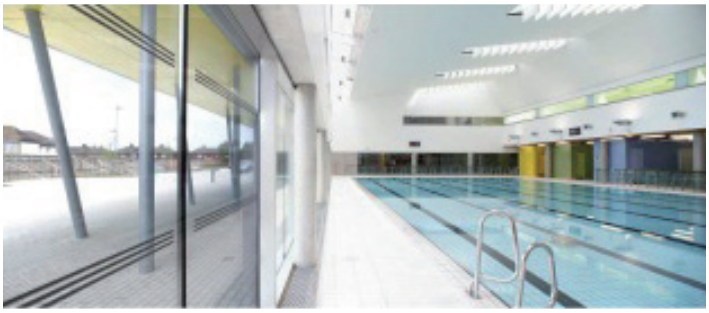

Ballyfermot, Swimming Pool

Royal Canal, Mullingar

Grand Canal, Rialto

Killiney Beach

Figure 1. Study Locations: representative images.

grammes with their children to uncover their perspectives on the perceived benefits of swimming for their children, including a very small level of children's commentary. Cohort 3 (n=21) were a general swimming group of mixed ages, who in a sense, acted as a sort of informal control group against the other two more focused groups. The researcher was a lifeguard and swim instructor at the pool and so had direct contact and involvement in each of the groups, which in turn aided participation and recruitment.

The second study involved detailed interviews (n=8) and diaries (n=4) within a single canal space in the inland town of Mullingar, County Westmeath. The study identifies the health and wellbeing benefits, identified by mixed regular users of the blue-way alongside the Royal Canal, The space had a very mixed set of users and was also the location of a regular weekly 'Park Run' of 5 kilometres. The researcher undertook regular participant observation walking in the space and the interviews and diaries incorporated a mix of regular users (walkers and joggers) and 'park' runners.

A final study captured detailed in-situ user-perspectives (n=8) of two very different blue spaces, a canal and a beach, in two locations (Grand Canal at Rialto & Killiney Beach) in South Dublin for two variable adult age cohorts. Each of the respondents was interviewed on the same day in both spaces, with an equal split in terms of the order in which they visited each space. The interviewer co-walked with the respondents, but also asked them to complete short structured 'sensory-place' responses at different points along the walk. The in-situ visit was completed with a representative photo elicitation in a nearby café. While these were very different studies and might each be reported independently, the aim of the paper is to assemble together a range of surveys that combine breadth and depth of user perspectives and methods to uncover common themes and outcomes. There are trade-offs in terms of larger samples for better quantitative analysis and smaller numbers for detailed in-situ work qualitative depth, but they are complementary within a methodological programme that was specifically developed to elicit an assemblage of responses and views.

Table 1. Summary Statistics.

Study Location(s)	Ballyfermot	Mullingar	Rialto/Killiney
Blue Space Type	Swimming Pool	Canal	Canal/Beach
Blue Space Setting	Indoor	Outdoor – Rural - Inland	Outdoor – Urban - Coastal
Number of Respondents	79 (31/27/21)	12 (8/4)	8
Data Collection Location	In-situ (after swim)	In-Situ (random in site)	In-Situ (walk-alongs)
Data Collection Methods	Semi-Structured Interviews, Participant Observation	Semi-Structured Interviews & Diaries, Participant Observation	Structured Guided Interviews & Visual Elicitation
Age Range	3-81	28 - 72	21 - 55
Main Respondents	Parents/All Adult Ages	Adults	Younger-Older Adults
Broad Health & Space Focus	Active	Mixed Active Passive	Mixed Active Passive, more Contemplative
% Recording Health Benefits	98.7%	90%	90%
% Recording Physical Health Benefits	54.4%	80%	75%
% Recording both Physical & Mental Health Benefits	26.6%	88%	75%
% Recording Wellbeing Benefits	17.7%	44%	50%
Physical Health Key Terms	Strength, fitness, exercise, illness management, rehabilitation, breathing.	Fitness, exercise, steps, running, energy	Fitness, exercise, alertness, breathing.
Mental Health Key Terms	Calming, de-stressing, improved concentration, listening	Space to think, less stressed, ability to be still, self-control.	Space to think, calming, relaxing, enhanced awareness/attention.
Wellbeing Key Terms	Relaxing, recovery, socialisation, confidence, excited, sense of achievement	Getting away from it all, socialisation, conversation space, relaxed, quiet.	Getting away from it all, affective place factors (+/- including) noise, visuals, smells; cleansing.

3. RESULTS

3.1. Summary of respondents and responses

As an initial output, broad comparisons between the different studies are listed in Table 1. The first seven rows list the contexts, study sizes, locations, methods and general cohorts associated with each of the three studies. The remaining eight rows summarised in very broad terms the identified health and wellbeing benefits as well as specific key terms identified in relation specifically to physical health, mental health and general wellbeing. What was clearly evident were the generally high levels of response, in overall terms, of the benefits for physical health, mental health and general wellbeing across all the studies, with an average of 93% recording some health benefit across each study. In relation specifically to physical

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health, there was an average of 70% and a range from 54% to 80%; while for mental health the average across all three studies was 63%, with a range from 27% to 88%. Finally the lowest average was identified for wellbeing benefits, 37% with a range from 18% to 50%. In each case the percentages for the swimming study were lowest, but this was also by far the largest in terms of numbers of respondents and that affected the reporting. It should also be noted that across the different groups of respondents who ranged in age from 3 to 81, there were also considerable overlaps between these terms; a considerable proportion of respondents effectively recorded 'all of the above' when asked as to the health and wellbeing benefits of their encounters and activities within blue space, whether indoors or outdoors. Only one respondent, from the parental cohort of swimmers, said they saw no benefit, while most of the remaining negative responses were recorded in the urban canal space, primarily associated with specific locational qualities and associations.

The table also includes, based on an analysis of coded qualitative coded responses, a series of key terms selected or used by participants in relation to how they identified those benefits. While one of the swimming cohorts had an explicit exercise-based task, almost all of the others were responding against a wider set of questions on self-identified benefits. What was especially interesting was the ways in which these identified benefits included clear associations not just with benefits associated with physical health (strength, fitness) and mental health (space to think, relaxing. calming) but also associations with wellbeing under broad headings of self-discovery, recovery and socialisation.

3.2. Physical Health Benefits

The swimmers at Ballyfermot involved three different groups and each had slightly different aims, but all were focused on learning or bettering swimming technique and ability, alongside everyday leisure. The 'Swim for a Mile' group varied in age from early 20s up to 82, though most were between 25 and 55. The aim of this group, across a twelve-week programme, was to be capable of swimming a mile (1.62 kilometres) up and down the pool, which in itself had a direct link to enhanced physical health. Some were initially very weak swimmers and gradually improved their strength and general fitness, specifically through improved stamina, technique and breathing, through the programme. That focus on strengthening and development was also evident in the views of the parents with children learning to swim, who also followed a similar twelve week programme, with the physical changes evident even in 3 to 5-year old children. For the general swimmers, motivation came in many forms. Younger teenage swimmers used the pool for training for competitive sport, whereas for adults and older adults the ability of swimming to maintain fitness and bodily capacities was also regularly noted. Indeed sometimes a strong motivation for parents for their own children were skills and capacities they did not have themselves; 'it's an invaluable life skill to have and as someone who absolutely hated swimming and water I didn't want my son to be the same. As a 31-year-old I still cannot swim' (Parent, Swimming Pool). Even for a child who was comfortable in the water, the physical benefits were visible in a number of ways, 'she has much better posture and her breathing is more controlled. She is also more adventurous in the water' (Parent, Swimming Pool).

What was noticeable from across the sample was the small but significant proportion, around 20%, of people who had identified health issues. On the medical side, people were doing swimming as part of rehabilitation from a variety of knee, leg and hip conditions; in the case of at least two respondents, swimming had been explicitly prescribed by medical professionals. For the children in particular, swimming was linked to the management of specific physical conditions including bone cancer, scoliosis and policytic astrocytoma. In both these cases the ability of the swimming programmes to manage symptoms and ease disease impact and pain were all explicitly mentioned by the participants/parent;

> Emma had metal rods inserted on her spine to support her back during treatment for bone cancer in February 2015. It remains to be seen if the treatment has weakened her back or not, but swimming is an exercise that may become vital to her physical health (Parent, Swimming Pool).

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From the Mullingar canal study, a smaller number of respondents provided more detailed responses through interviews and diaries, though amongst them around half were also involved in a programmatic element, a regular weekend timed 5km 'Park Run' run alongside the canal banks, part of a global network of 'Park Runs' (Morris, P. and Scott, H., 2018). In addition, immediately beside the canal bank is a parallel linear green space, restored from a historic railway route. What emerged were a significant proportion of respondents for whom the blue (and associated green) space and the specific physical activities observed in and around it namely; sitting, walking, cycling, jogging, running, canoeing, all promoted to a greater or lesser degree, a physically healthier population. From interviews and diaries, around 80% named specific physical benefits that included improved fitness, regular exercise and measurable outcomes including increased running steps and improved times (for the Parkrun) as well as enhanced energy.

> I would never have been a sporty type of person but I think just to get out and walk is very good for your health. It's good for your mind, it clears your head. It helps if you're walking with somebody, you can talk over things and really get into the nitty-gritty of what might be bothering you and without fail, just letting your heart rate rise and slow down and rise – that has to be good for you. I think any bit of exercise has to be good physically, mentally, emotionally, everything really (Respondent, Inland Canal).

When comparing the urban canal and beach sites in Rialto and Killiney respectively, the respondents were not involved in any sort of formal health programme but rather discussed the space more broadly in terms of potential health-enabling benefits. They were also asked to complete, at three specific points along the walk, a set of sensory responses which included both a physical and emotional response to the canal/beach space at that moment (emotional and wellbeing questions are more fully discussed in the following sections). Respondents were also asked to record and describe the colour 'palette' of the blue space they were in, as a means to get a sense of whether the space had a clear meaning to the respondents as a coloured blue space, or even , how blue it seemed (Foley, R., 2018b). From a sensory perspective, vision, smell, sound and touch emerged as significant mediatory factors in the experience of those blue spaces. Indeed it was those direct physical responses in place that shaped how respondents viewed them in turn as physically healthy places. The freshness and openness of the sea air was generally preferred to the more diluted and closed spaces of the canal that reflected wider literature on urban coastal and canal spaces (Völker, S. and Kistemann, T., 2015; Pitt, H., 2018).

> You can take a photo of a canal, and it is very similar to what you were experiencing, the sound is not as dominant because it was more to do with the light, whereas on the beach all you could hear was the waves, a whoosh! If you could attach a sound file to the photo it would be really evocative of where you were - the waves crashing, the rocks gurgling. Whereas if you did the same on the canal, you would have heard the sound of cars going by (Respondent, Canal/Beach).

3.3. Mental Health Benefits

While many of the respondents across all three studies did sometimes blur physical and mental health benefits into a single response, it was also possible for mental health benefits to be specifically identified. For the indoor swimming respondents this emerged in different ways across each cohort. For the 'Swim for a Mile' group, specific identified responses included stress relief (15.6%), improved self-esteem (9.4%) and being relaxed and calm (18.4%). That sense of being away from stresses in the water was a common response with one respondent noting, 'when you are in the water you can't really hear everything that's going on outside'. For the children's learning to swim cohort, swimming was identified by several respondents as having a specific link to the management of psychological/emotional health and in particular the management of autistic spectrum disorders whereby parents especially valued, 'the lessons for learning to take instructions and to follow directions', both important in the socialisation and development of children on the spectrum. For one of the general swimmers, they noted in terms of mental health that they were;

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> Relaxed and challenged at the same time. There is always something to learn and improve on your technique or stamina. It's very good for mental health as you're concentrating on your goals. Highly recommend as it's also a life skill (General Swimmer, Swimming Pool).

Given the nature of those conditions, the swimming programmes was identified explicitly in its capacity to restore mood and improve attention, with a young male in his mid-twenties noting that swimming, 'enhances my overall mood and it's an energy boost'. These identifications of enhanced attention, responsiveness and energy link strongly to other blue space research around mental health benefits, even if most of those studies are outdoors (Britton, E., 2018; White, M., *et. al.*, 2010).

In the inland canal study, there were again blurred responses but from a direct mental health perspective the blue space was explicitly identified as a place in which there was an opportunity to think and relax in fresh air, away from more 'stuffy' spaces such as homes and pubs. This identification of the importance of time to one's self and time spent in the fresh air of nature was noted by a respondent as follows;

> Where I am in those sort of areas, I often find myself getting headaches … especially in the winter when you have the heat on … going to the gym doesn't really help at all because you're going from one stuffy room to another so, getting out and walking or running in fresh air is definitely something that attracts me to the area. Especially when I have a lot on my mind or if I have a headache, it's just a lot nicer to be going out in the open air than having to be stuck in another stuffy room (Respondent, Inland Canal).

While being left alone with one's thoughts and excessive rumination are identified issues in mental health studies, it does seem as if there is a qualitative difference in literally and metaphorically, bringing those thoughts outside to different settings and atmospheres (Söderström, O., et.al., 2016).

From the Canal and Beach study the broad benefits of being outdoors were again identified in relation to aspects of attention-restoration and increased alertness to self and place that were in turn linked to calmed minds and bodies. One respondent agreed with questions on whether they saw the beach as a positive cleansing space;

> … yeah definitely … because you know you have wash … and then backwash … so you know that in itself it's kind of cleansing and then I do get another meaning of cleansing … like just looking at them or something, it makes you feel relaxed and more positive. Like cleansing negativity maybe… (Respondent, Canal/Beach).

Yet in the canal/beach comparative study, there were also some more negative responses that might even be characterised as 'disbenefits', with the more contested muddied space of the urban canal identifiable(in keeping with the wider literature), as a potential space of fear and risk (Pitt, H., 2018);

> Yeah I guess so… I think I'm a bit biased as well, because definitely where I'm from the canal is just negatively associated with underage drinking and a lot of people would hang themselves down by the canal or jump off the bridge. So in my experience when I hear 'down by the canal' it's just always negative (Respondent, Canal/Beach).

3.4. Wellbeing benefits

While the more descriptive and summary results across the three different spaces give a broad sense of their value to physical/mental health, their broader wellbeing effects (acknowledging how difficult these are to clearly separate) were also intriguing. It is these effects that provide a better narrative in terms of shared benefits and the often overlapping and complementary ways blue spaces work, whether indoors or out. In addition, the canal/beach study also asked respondents to score a response (from 1 (low) to 7 (high)), which was an adapted variant of questions asked within general wellbeing instruments (PWI). This included a place-specific component around perceived levels of connection, safety and openness (Table 2) (Linton, M.J., Dieppe, P-M. and Medina-Lara, J., 2016). Overall, whichever order the visits took place; the scores were higher (more positive) for the beach relative to the canal, though the impact of the order of visits to the comparison was also evident. The respondents who visited the canal first gave it above average scores,

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while those who visited the beach first, also recorded higher relative scores, confirming a strong relational preference for the latter space.

Table 2. PWI Sub-scores, Canal/Beach Study.

Average Scores (7-point)	All Canal	All Beach	Canal First	Beach First	Canal Second	Beach Second
Do you feel Open?	3.5	6.4	4.0	6.0	3.0	6.8
Do you feel Safe?	3.4	6.1	4.0	6.3	2.8	6
Do you feel Connected?	4.1	5.3	4.8	5.8	3.5	4.8

Across all three studies, a number of broad themes emerged that we identified as being common across all settings and cohorts and which also aligned well with wider measures of wellbeing (Bell, S. *et. al.*, 2018). The first of these is a sense of **self-discovery**, which emerges in embodied and emotional ways through both the practices and the settings. For swimmers, walkers and runners, this was focused on both inner and outer strength, but also the movement towards the water as a way of surprising oneself and discovering new perspectives and response from it, that in turn brought with it 'improved energies' as a sub-theme, both of place and of self. When comparing responses in canals and beaches, that sense of self-discovery is triggered in place, where it emerges as a relational sense of wellbeing linked to that 'new space knowledge', but that also very much alerts them to their own capacities to be better versions of themselves in those moments. These findings also resonated with research that focused on the capacities of nature to build people's autonomy and self-esteem (Frumkin, H., 2003).

> I came over my own expectations; I did not notice when I reached the 64th length; a great way to prove to myself what I am capable of ... (Swim for a Mile Respondent, Swimming Pool).
>
> But in the same way that I find the ocean calming when it moves and the canal is calming when it's still... I think it's just the stillness and the way the light plays off the water... you can kind of get lost in it you know... it's like looking into a fire, you know when you're watching the flames and you can make shapes and stuff, that's what this reminds me of... and then you begin to notice stuff that you didn't see before. Even like flowers in the grass and stuff... (Respondent, Canal/Beach study).

While most of the responses were individual and many swimmers and other blue space users across all the studies explicitly valued their 'alone/me' time, what also emerged very strongly was how important wellbeing benefits linked to **socialisation** emerged in these different shared blue spaces. From the group activities within the swimming pool, to the shared spaces of the canal banks and beaches, most respondents identified an enhanced role for shared socialisation whether for children and their parents, partners or groups of both friends and even strangers, who were connected by a shared activity in that space. What was also very evident was that there was a space for both social and contemplative experiences in blue spaces at one and the same time. The opportunity for individual contemplative/mindfulness benefits as a complement to socialisation was identified in other studies outdoors, especially with walkers (McPherson, H., 2010). In this sense the canal emerged as a blue space that was seen as a neutral and flexible/pliable space in terms of a shared social ownership.

> That's a difficult one. I suppose I probably relax better when I'm doing a run on my own but at the same time, on the Parkrun where you meet people, you're running alongside them and there's a bit of fun and a bit of chat, it is very enjoyable as well. It's a bit contradictory I know. Yeah, exactly. I'm probably having the best of both worlds that I can come out on my own...I can get a bit of both, meeting people and yet still being able to do the run in quiet and at my own pace. (Respondent, Inland Canal).
>
> I kind of like here that you can see other people and have other people around but you're just not stuck beside them the whole time, you can just keep walking by so you don't feel like you're completely on your own here but also that you're not stuck beside anyone" (Respondent, Inland Canal).
>
> One of the men said that the '7am gang' are 'like a family' and that they would 'do anything for each other' (General Pool User, Swimming Pool).

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Finally, and overlapping with more formal measurable benefits such as stress-reduction and attention-restoration, a wider experience of recovery was evident across all three studies. While the previous sections described specific example of rehabilitation in relation to physical/mental conditions, the responses also spoke to the power of the blue in producing spaces of recovery. The terms emerged in a number of different associated synonyms, such as restoration, renewal and various forms of relaxation and the calming of over-tired minds and bodies. In some cases the blue space helped in very specific ways, for example the parent of a child with policytic astrocytoma (a brain condition which affects mobility), noted that for their daughter;

> X … had a bone cancer diagnosis two years previous … swimming has given her a huge boost, something she never thought she'd be able to do. And that confidence extends to other aspects of her life as well (Parent, Swimming Pool).
>
> I always feel a bit less stressed after a walk outside and if you're in a bad mood or really frustrated, it just lets you get over that a bit and just blow off some steam I think…it just gives you a bit of room to breathe as well I think (Respondent, Inland Canal).
>
> Swimming is one of the only sports she can do … it is making her more active, helping her to loosen her muscles as well as making her more confident while she is swimming and in herself. … she walks better … and she is a happier and more confident child' (Parent, Swimming Pool).

Several of the respondents also talked about the capacities of the different blue spaces to give them space and time to think and relax, in ways that emphasised the value of a recurrent blue recovery space. Indeed exposure to blue space and its role in enhancing recovery in relation to both health and wellbeing has emerged as an important factor across multiple studies (Gascon, M., et al., 2017). While recovery is often associated with more passive immersions in such spaces, there can be recovery through active practice as well and several of the park runners in the inland canal study mentioned active recovery, confirming Australian research that identified associations between Park Runs and measures of wellbeing such as PWI (Grunseit, A., Richards, J. and Merom, D., 2018). A final benefit identified from the comparative canal study was a specific value within busy urban settings;

> So it's nice being in Dublin knowing that the ducks are nearby. But definitely the canal was really lovely, even having that extra bit of greenery because at the time in my apartment I didn't even have a back garden. So in a way the canal was like my back garden for the year! I love to going down there and even watching people interacting there, it was nice. Even seeing the swans and the wildlife on the water… it was a bit like an oasis in the middle of the city (Respondent, Canal/Beach study).

4. DISCUSSION: BLUE THERAPEUTIC ASSEMBLAGES

I just love the water. I just find it very relaxing. I think, especially on a nice day, it's so nice to come here and just enjoy being outside and enjoy the nature and everything. It just makes you feel nice and calm because it's quiet but you can hear the birds and the water kind of slowly moving and it's just nice and peaceful. I just really like this kind of scenery, like beaches and lakes and stuff so I love having the canal so close to my house. You can kind of see part of it from my house as well which is really nice, I just really like looking out at the water. It's just so nice to come here and just let your mind wander and you nearly feel like you're on your holidays when it's really sunny (Respondent, Inland Canal).

What emerge from the studies are complex assemblages of identified therapeutic outcomes, reflecting diverse user perspectives from different types and locations (rural, inland, suburban, and coastal) of blue space (Bell *et. al.*, 2015). User cohorts, just under one hundred in total, include very young children, children, young adults, adults and older people that drew from a good range of respondents, triangulated across the different spaces. This paper argues that there is a value in research approaches that involve a heterogeneity of place capture to identify shared outcomes, both positive and negative, in how blue space operates (Bell *et. al.*, 2018). In terms of health and wellbeing, there are specific commonalities and variations as to how users explicitly valued the blue spaces that reflect wider writing on canals, beaches and swimming pools (Grellier *et. al.*, 2017; Ward, 2017; Pitt, 2018). That consideration of value also inks to wider

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policy on ecosystems services and issues around how blue space might be identified in terms of its specific resource value for health and wellbeing (Ashbullby *et. al.*, 2013). In the inland canal study, there was a lot of effort made by both the local authority (Westmeath County Council) and Waterways Ireland to create and maintain that blue space, while the ongoing upkeep of swimming pools are neither easy nor cheap. The maintenance of such spaces, in keeping with their identified value for maintaining health, needs to be recognised. That wider blue space resource management is essential in keeping pools open, refurbishing canal spaces and the managing wider health and safety dimensions of blue spaces (Foley, R., *et. al.*, 2019). This was expressed visibly by respondent in Mullingar;

> I suppose, in the past, local authorities have concentrated on things like roads and housing and water supplies. But, people's health is very important, especially their mental health, so, it's very good to see the local authority to be involved in developing something like this. It probably wouldn't happen without the money that the government and local councils can bring to it. So, it's important that they not alone just create the space but that they promote the use of it too (Respondent, Inland Canal).

From Table 1 there is a clear continuum in those benefits, moving from the explicitly physical to mixed active forms of mobility and then moving on to slower and more contemplative mobilities and even stillness in blue space (Gesler, 2003; Macpherson, 2010). there were shared physical health benefits across the three studies, incorporating fitness, exercise, energy and breathing as well as a wider sense of illness management. Similarly there were shared key terms around the mental health benefits, specifically, stress reduction, spaces to think, being relaxed and calm but also enhanced concentration, awareness and attention (Linton *et. al.*, 2016). The range of named physical health benefits provided evidence for the benefits of physical activity in relation to exercise (both in and beside blue space), as well as strengthening and toning. There are also, especially in relation to the swimming study, some explicit referrals from health professionals, while other physical benefits in terms of a wider 'blue prescription' include improved energies and better sleep (Amoly *et. al.*, 2014). There were strong overlaps between identified mental health and wellbeing benefits from being in and around blue space that included examples that related to established psychological indicators such as stress reduction or attention-restoration as well as enhanced levels of calming and focus (Foley *et. al.*, 2019). Within the canal/beach study there was also a limited use of a personal well-being instrument (PWI) that identified enhanced preferences for beach over canal spaces.

From the more qualitative responses there was consistent agreement on aspects of self-discovery, socialisation and recovery. These were important findings that in turn reflected wider research on autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance, many of which appeared informally across these blue space studies (Mutz and Müller, 2016). In addition, there was a sense of affective practice relationships with/in such settings, whether explicitly in the case of swimming, running or walking, or implicitly within more everyday movements and even stillness within such spaces (Grunseit, Richards and Merom, 2018). The different blue spaces were identified as valuable and generally free or low-cost resources for health and wellbeing that connected relationally to other parts of people's lives. This was the case for swimmers in relation to family, social and school life and for canal users whereby the blue paths marked points of crossing but also traced trajectories for people's everyday living (Foley, 2017). Finally, the more contemplative spaces explored in the canal/beach study, brought out a very strong link to relational lives around self, memory, family, friends and identity (Foley, 2018a).

5. CONCLUSION

These are not fully funded and developed long-term studies and are not standardised in terms of sample size and research design, though they could be easily scaled-up to do this. Nevertheless, in the immediacy of their short-sharp interventions and a collection of still substantive evidence, the findings reflect wider discussions on the 'value and evaluation' of blue spaces as resources connecting public health and nature

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(with some artificial environments as well). The research hints at the potential of 'place capture' and intimate sensed qualitatively focused 'emplaced blue community' studies to underpin and extend more quantitative survey-based research. Example internationally included detailed surveys such as the forthcoming global *Blue Health* study (Grellier, J., *et. al.*, 2017), but also work in Andalucia linked to studies of green space in Mairena del Aljarafe and Carmona and developing blue space studies in Sanlúcar de Barrameda (Centre for Health Territory Research, Universidad de Sevilla). We would also argue that from a policy and depth of understanding perspective, there is also a value in mixed quantitative and qualitative work that provides different insights when taken directly in-situ (Spinney, J., 2015). In addition, the studies emphasise the occasional difficulty of separating out the green from the blue, though in these cases, prioritising blue over green.

Finally, all of the studies consider these blue spaces as resilient resources to promote a wider public health that are not always valued or guaranteed. In terms of access, there was generally no payment or free access to outdoor canals and beaches, with some payment for the indoor swimming pool (free for older users).. One of the questions asked was how general swimmers would feel if the pool was closed, a not uncommon feature when public spending cuts are considered. The responses reflected such an eventuality as a real loss or gap in people's lives and a small willingness-to-pay. But equally, it is important to note negative responses, even if generally these were self-selecting positive user groups. Negative aspects of places focused on the canal, especially in its urban reaches, as being ugly, dirty, polluted or polluted, though other studies show these attitudes change when such spaces are revitalised by active use and participation and awareness (Pitt, H., 2018). In a sense, of all the spaces, the beach seems the most preferred and least threatened space of the three, yet due to natural forces of coastal geomorphology, storms and climate change, these too remain vulnerable. The cold and wet Irish weather was also identified as a natural deterrent to people going out to canals and beaches; here ironically the controlled environment of the swimming pool came into its own (Bell, S., Leyshon, C. and Phoenix, C., 2019; Ward, L., 2017). Overall, all three spaces acted effectively as health enabling spaces; it is important to remember that for multiple users to get multiple levels of health enablement from them, those places must be managed and maintained and reflect their own resilient potentials. Unlike the indoor pool, canals especially and the coast to a lesser extent, were not specifically designed to be sites of health promotion, but have become such sites through affective practice and the power of blue spaces to draw people toward them.

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