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ORIGINAL RESEARCH ARTICLE

The Wellbeing in Place Perceptions Scale: Structure, Validity, Reliability and Correlates During COVID Times

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Abstract

The influence of place-based factors on the physical and mental health of residents is well established and acknowledged within the population health approach to addressing health and wellbeing inequalities. The COVID-19 pandemic brought to the fore the issues that global communities face. The current UK policy context of 'levelling up' represents these concerns and the need to address them. This research examines perceptions of community wellbeing and its determinants as collected within a city region of the North West Coast of England during COVID restrictions between June and August 2020. The paper aims to establish the structure, construct validity and reliability of a new measure of community wellbeing - the Wellbeing in Place Perceptions Scale. Further, it aims to examine how this measure of community wellbeing correlated with symptoms of common mental health as reported by residents of this relatively disadvantaged city region during this unprecedented time. Results indicate that the WIPPS has a reliable and valid structure, correlating significantly with another widely used measure of sense of community and with the Index of Multiple Deprivation. Its relationship to self-reported common mental distress is also clear. Though in need of replication and longitudinal testing, the findings reported here on this new measure remind us that individual and place-based factors combine to influence wellbeing and that community needs to have an increasingly influential role to sustainably prevent future mental health challenges.

Keywords Community wellbeing · Factor analysis · Mental health · COVID-19 · Social determinants of health

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Introduction

The role of place-based factors in determining physical and mental health and well-being is now well established, rendering the association beyond doubt e.g. (Farrell et al., 2004; Klein, 2004; Bernard et al., 2007; McGowan et al., 2021). Recent initiatives such as the establishment of Marmot communities in the UK is testament to the importance of tackling these wider social, economic and environmental determinants to address population health and wellbeing and their unequal distribution nationally and internationally. The onset of the global SARS COVID-19 pandemic in 2020 has brought an applied focus to the important role that communities play in tackling health and wellbeing challenges. As a result, there has been emphasis on the need to 'build back better' (Marmot et al., 2020).

While some researchers propose that individual-level factors have greater influence on mental health and wellbeing compared to neighbourhood factors (Propper et al., 2005), others argue that individual, social and physical neighbourhood factors are so interconnected in their influence on health and wellbeing that it is better to integrate and consider them together (Cummins et al., 2007; McElroy et al., 2021), mirroring research into physical health risk and mortality (Zhang et al., 2021). One way of integrating these factors is through a focus on community wellbeing and its determinants. Community wellbeing refers to the collective wellbeing of a group of individuals who represent a given community (Cloutier et al., 2019). Being more than the sum of individual wellbeing of an area, community wellbeing is determined through the combination of social, economic, environmental, cultural, and political conditions *identified by* an individual and their community as being fundamental for them to achieve their potential and to function effectively (Atkinson et al., 2020; Wiseman & Brasher, 2008; Pennington et al., 2021). Using the constructs of community wellbeing and its determinants unlocks potential to inform how a place can be improved to enhance the overall health and wellbeing of its residents.

Research has successfully identified specific characteristics of a built environment which influence health and wellbeing. These characteristics include housing type and quality, noise levels, crowding, derelict buildings, the presence of 'environmental goods' (e.g., children's play areas) and the provision of green space (Weich et al., 2002; Guite et al., 2006; Evans, 2003; Ellaway et al., 2009; Ward Thompson et al., 2014). For example, one study by Bond et al. (2012), found that the physical aspects of a neighbourhood and the quality of residents' homes were significantly associated with wellbeing, while in a systematic review of 263 studies by Wendelboe-Nelson et al. (2019) around ¾ of studies found a positive association between green space and mental health and wellbeing.

Needless-to-say, other factors are also influential and it is likely the combination of individual place-related factors and their complex interactions that has significant impact on both individual and community wellbeing. As always, the toll of these factors and their interactions are unequally distributed across the population and are thus thought of as the determinants of health and wellbeing inequalities. Poor mental health has been found to be higher in children, adolescents (Morrison Gutman et al., 2015) and adults (WHO, 2000) from low-income families. In contrast, indicators of social advantage such as higher income, being in paid employment, and having a

higher level of education have all been found to predict better mental health (Barry, 2009). Furthermore, it is thought that individuals living in environments of concentrated disadvantage, may be more likely to suffer poor physical and mental health due to their increased exposure to adverse life events in comparison to those in socially advantaged circumstances (Whitehead et al., 2016). In addition to this, individuals living in disadvantaged circumstances are likely to have insufficient access to the materials and resources which provide the autonomy and skills to deal with adversities over which they have little control. Lower 'actual' and 'perceived' control at individual and community levels have been linked to poorer health and wellbeing outcomes (Whitehead et al., 2016; Orton et al., 2019; Pennington et al., 2018).

As well as economic and physical determinants of health and wellbeing, the social capital of places (i.e., the sense of belonging, trust, reciprocity, participation, and cooperation within a community; Chu et al., 2004) significantly influences individual and community wellbeing. Previous research has discovered that having social support, participating in social activities, and being part of a social network are all linked to wellbeing (Cornwell & Laumann, 2015; Munford et al., 2017). Thus, current literature shows not only that social capital is beneficial to wellbeing (Hamano et al., 2010; Barry, 2009; Whiteford et al., 2005), but also that a perceived lack of it can damage the quality of support available in places, ultimately leading to social isolation and loneliness (Taylor et al., 1997).

Recent years have been associated with a strong emphasis on the establishment of 'objective' measures of place-based determinants of wellbeing. This is evidenced by the establishment and outputs of the UK's What Works Centre for Wellbeing and the Office for National Statistics annual collection of wellbeing data across England. The influence upon health and wellbeing of individual beliefs about community and neighbourhood functioning is, however, an area that has been relatively neglected to date. In their conceptual review of community wellbeing, Atkinson et al. (2020) stressed the importance of gathering the collective voice within measures designed to assess community wellbeing. The significance of perceptions or subjective beliefs of how a place functions are of great value when it comes to understanding the impacts of place-based determinants of health and wellbeing. This has been emphasised in research exploring the so-called urbanicity effect (i.e., the higher prevalence of common and serious mental distress in urban areas) showing that the perceived quality of the built and living environment is relevant to understanding the cause of this robust effect (Evans, 2003; Ellaway et al., 2009). More research is needed to unpack complex questions such as how perceptions of the built social fabric of places interacts with objective and subjective social capital (Walsh et al., 2015).

The significance of neighbourhood, community and wellbeing as societal concerns has been highlighted by the COVID-19 global pandemic, which surfaced towards the end of 2019. In response to the spreading virus, nations acted through a combination of confinement and mitigation strategies (Anderson et al., 2020; Parodi & Liu, 2020) in the hope of preventing further spread of the disease. On the 23rd of March 2020 residents in the United Kingdom were advised by the government to only leave their homes for restricted reasons which included shopping for necessities, one daily form of exercise, medical needs, and to go to work if working from home was not possible (Khan et al., 2020). The disruption to everyday social and community life

that the pandemic restrictions caused are likely to have taken a particular toll on the mental health and wellbeing of some more than others. Holmes et al. (2020) found in a general UK population survey that worries regarding the psychological impacts of COVID-19 were ranked higher than concerns regarding physical health. It is also believed that these psychological effects may continue to exist long after the pandemic (Wetherall et al., 2020). In a study by Khan et al. (2020), the prevalence of mental health problems in the UK (36.8%) was found to be higher than before the COVID-19 pandemic (around 25%) (Mind, 2020). Likewise, Daly et al. (2020) found a 51% increase in the prevalence of mental health issues as measured by the General Health Questionnaire-12 (GHQ-12) in the UK from pre-pandemic to April 2020. Recent studies also appear to have identified a global pattern in specific groups whose mental health appears to have been most burdened by the pandemic. These groups include women, those under the age of 35, those with lower income, unemployed individuals, and those living alone (Pieh et al., 2020, p. 7; Daly et al., 2020; Smith et al., 2020; Groarke et al., 2020; Devine-Wright et al., 2020). Furthermore, White and Van Der Boor (2020) discovered that people who felt more isolated during lockdown had greater levels of anxiety and depression symptoms, and decreased levels of wellbeing. However, those who felt more connected to their community experienced decreased levels of depressive symptoms and higher quality of life. The researchers also found that participants perceived social support negatively correlated with depression and anxiety levels, and positively correlated with quality of life.

While research investigating the psychological impacts of the COVID-19 pandemic continues to emerge, there seems currently to be no research into the effect it has had on community wellbeing or people's perceptions of community wellbeing. Nor, to date, has there been much research examining how the pandemic has affected perceived determinants of community wellbeing or how community wellbeing may influence individual mental health in these uncertain times. In an analysis of COVID social restrictions responses in the counties of USA, Borgonovi and Andrieu (2020) showed that areas with higher social capital at the outset of the pandemic responded to restrictions more swiftly, identifying the role that established social capital can play in directing community action. While the precise mechanisms underpinning such associations is unclear, support for the beneficial role of pre-existing social infrastructure and of community organisations as cogs within the local system tackling COVID has found support in the UK (Locality, 2020) Other evidence shows that the role of volunteering in one's community during COVID appeared to retain the same benefits to sense of community and individual wellbeing as pre-pandemic research has consistently pointed to (Bowe et al., 2021).

In the present study, community wellbeing and mental health were measured during the first UK lockdown specifically for residents of one disadvantaged city region situated in the North West Coast of England. It employed a newly devised indicator, the Wellbeing in Place Perception Scale (WIPPS; Pennington et al., 2021), as a measure of subjective individual, social, environmental and economic determinants of community wellbeing and of perceived community wellbeing itself. The first aim of the study was (a) to explore the structure of the WIPPS using exploratory factor analysis; (b) to establish the measure's construct validity by its association with another measure of community wellbeing, Brief Sense of Community Scale (BSCS);

and (c) to test its internal reliability using Cronbach's alpha statistics. The second aim of the study was to investigate the relationships that exist between WIPPS and its factors, area Index of Multiple Deprivation (IMD) and self-reported symptoms of common mental distress.

Methods

Participants and Procedure

The findings reported here represent a nested sub-study testing the reliability and validity of WIPPS within a household survey aiming to explore the psychological and social impact of the COVID-19 pandemic on residents of a city region in the North West Coast of England. Data was collected through an online survey of 290 people residing in the city region (Ujhelyi Gomez et al., 2022). Participants were recruited through re-contacting participants who had previously responded to the NIHR CLARHC North West Coast Household Health Survey (Giebel et al., 2020) and through advertising the survey via local and social media. The survey received ethical approval from the University of Liverpool Central Research Ethics Committee (Ref.: 7739). Demographic information collected within the survey included age, gender, ethnicity, marital status, accommodation type, and residential borough, education level and work status before and during the pandemic, as well as the current IMD for the area of residence. Further details about this wide-ranging household survey can be found in Ujhelyi Gomez et al. (2022).

Measures

The Wellbeing in Place Perceptions Scale (WIPPS; Pennington et al., 2021) was designed by the Community Wellbeing Evidence Programme of the 'What Works Centre for Wellbeing' (Pennington et al., 2021) to support the evaluation of place-based interventions including measuring change as a result of unplanned events, as well as the implementation of national or local policies. The measure was developed based on a systematic scoping review of available indicators of community wellbeing (Bagnall et al., 2017a) and assesses how individual community members perceive their place is functioning for their community. The questionnaire uses positively phrased statements developed using a number of different resources (see Pennington et al., 2021). The first part of the measure comprises 20 items and captures the five thematic determinants of wellbeing in places: mental, social, health, environmental, and economic capitals. Six further statements in the second part of the WIPPS explore general perceptions of community wellbeing as applied to neighbourhoods. Taking into consideration the past month or so, participants were asked to indicate their percentage agreement with each of the 26 statements across Sects. 1 and 2 of the WIPPS. Table 1 includes the subscales and individual items of the WIPPS as originally devised by Pennington et al. (2021).

The Brief Sense of Community Scale (BSCS; Peterson et al., 2008**)** is a widely used 8-item scale that measures the extent to which respondents feel attached to their

Table 1 The subscales and individual items of the Wellbeing in Place Perception Scale

Sub-scale	Item
Section 1	
Mental capital	
	1. People seem happy here
	2. People seem satisfied with their lives here
	3. Around here people feel that the things they do in their lives are worthwhile
	4. People who live around here don't seem to be anxious
Social capital	
	5. It's easy to get involved in local activities and groups around here
	6. People feel they can trust their neighbours around here
	7. People feel they can rely on each other around here
	8. People who live around here get on well together
Health capital	
	9. On the whole, people who live around here enjoy good health
	10. People who live around here can access local health services easily
	11. Most people in this area have no trouble achieving their daily activities
	12. Around here there are enough opportunities to do things that help to keep people fit and well
Environment capital	
	13. Most homes in this area provide a good standard of accommodation for people
	14. Most of the streets, roads and public spaces in this area feel safe to be in
	15. It's easy to get around in this area without having to use a car
	16. This area has everything people need on a day-to-day basis
Economic capital	
	17. People have enough opportunity to find good quality jobs, training or education locally
	18. Most households in this area have enough money to live well on
	19. People in this area are able to move up in the world
	20 People around here tend not to get into too much debt
Section 2	
Community wellbeing	
	21. There are strong networks of relationships and support between the people who live around here
	22. The people who live here feel they can take action to improve things and/or influence decisions made about the area
	23. The people who live here feel they belong here
	24. No-one is left out in this community
	25. This area has a physical environment that helps people to feel good and function well
	26. This area contributes positively to the wellbeing of the people who live here

community. Using a five-point self-report Likert scale with end points of strongly agree to strongly disagree, the BSCS includes four subfactors of needs fulfilment, group membership, influence, and emotional connection to neighbourhood.

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001**) and the Generalised Anxiety Disorder Questionnaire (GAD-7;** Spitzer et al., 2006) were used to measure self-reported symptoms of common mental distress within the past week.

Responses on both scales are provided using a four-point Likert scale ranging from 0 ‘not at all’ to 3 ‘nearly every day’ with higher total scores indicating more severe symptoms. The PHQ-9 has been found to be a valid and reliable measure both for the identification of depression and for the measurement of its severity (Kroenke et al., 2001). The GAD-7 enjoys similarly high levels of reliability and validity for screening anxiety and its severity in clinical practice and within research settings (Spitzer et al., 2006).

(PHQ −9 Cronbach’s $\alpha = 0.86$; GAD-7 Cronbach’s $\alpha = 0.91$)

Data Analysis

Exploratory Factor Analysis

Exploratory factor analysis (EFA) was performed on Sect. 1 (20 items) and Sect. 2 (6 items) of the WIPPS. First, parallel analysis was performed to determine the number of likely components in the data. This was followed by Principal Component Analysis (PCA) with oblique rotation (direct oblimin) to confirm the number of items identified by the parallel analysis. Pairwise deletion was used to deal with missing data. Due to the different frequency distributions of the items, more stringent cut-offs are recommended (Comrey & Lee, 1992; Tabachnick & Fidell, 2007) such that 0.32 is considered poor; 0.45 is fair; 0.55 is considered to be a good factor loading; 0.63 and 0.71 are considered to be very good and excellent respectively. Therefore, in this study, a factor loading was considered meaningful at ≥ 0.45 and factors were identified accordingly.

Internal Consistency

Cronbach’s alpha reliability test (DeVellis, 2012) estimated the internal consistency of the scale and its newly imputed factors.

Validity and Sensitivity

Bivariate correlations were used to demonstrate the construct validity of the WIPPS. The extent to which WIPPS gauged ideas associated with sense of community was determined by examining associations between the WIPPS, the BSCS and their respective factors. The association between self-reported WIPPS and common mental distress was established using bivariate correlations between the WIPPS, the PHQ-9 and GAD-7. The association between WIPPS sections and area IMD was also examined in this way.

Results

WIPPS Summary Descriptive Statistics

Table 2 includes the summary statistics of the measures used. Data were non-normally distributed on all measures.

Participant Characteristics

Participant demographic and sociodemographic characteristics are reported in Table 3. The mean age was 49.47 ranging between 20 and 84 years. The majority of participants (63.8%) were female and from a white background (93.8%). Over half of the participants (59%) were married or co-habiting and were educated to degree level or above (61%). The majority of people lived in a house (82.4%) with 33.8% living in areas reporting the highest-level of multiple deprivation. Half of the participants worked full-time (50.7%) before the pandemic with 40.4% furloughed or unemployed during the crisis.

Aim 1: WIPPS Structure, Construct Validity, and Reliability

Exploratory Factor Analysis

WIPPS Section 1 Data (20 items) were subjected to PCA. The Keiser-Meyer-Olkin (KMO) value of sampling adequacy was 0.91, well above the recommendation of 0.6 (Kaiser, 1970, 1974) indicating that distinct and reliable factors could be produced and, therefore, the data were sufficient for EFA. Bartlett's test of sphericity reached statistical significance ($p < .001$) demonstrating patterned relationships amongst the variables. Based on an eigenvalue cut-off of 1.0, two factors explained a cumulative variance of 65.91%. The scree plot and parallel analysis (Pallant, 2005) indicated the retention of two factors. Table 4 below provides factor loadings subsequent to

Table 2 Summary statistics of included measures

Scales and sub-scales	N	Mean (SD)
WIPPS Sect. 1	286	66.91 (17.97)
WIPPS Sect. 2	262	60.88 (23.16)
BSCS total	287	26.70 (6.38)
BSCS Needs fulfilment	287	7.57 (1.83)
BSCS Membership	287	6.94 (2.03)
BSCS Influence	287	5.63 (1.68)
BSCS Emotional connection	287	5.63 (1.68)
PHQ-9	290	6.56 (6.76)
GAD-7	289	5.28 (5.69)
IMD	262	30.48 (19.06)

Table 3 Participant demographic and sociodemographic characteristics

Demographic and sociodemographic characteristics	N (%)
Age	288 (99.3%) Mean age (SD) = 49.47 (15.28)
Gender	
Male	91 (31.4%)
Female	185 (63.8%)
Total	279
Ethnicity	
Non-white	16 (5.5%)
White	272 (93.8%)
Total	288
Marital status	
Single/Separated/Divorced/Widowed	113 (39%)
Married/registered partnership/co-habiting	171 (59%)
Total	284
Education	
No qualification/GCSE/A level	110 (37.9%)
Undergraduate/postgraduate degree	177 (61%)
Total	287
Accommodation	
House or bungalow	239 (82.4%)
Flat/room *(Self-contained flat, maisonette, or apartment/ Room or rooms)*	49 (16.9%)
Total	288
IMD*	
≤ 8.49	7 (2.4%)
8.5 to 13.79	51 (17.6%)
13.8 to 21.35	59 (20.3%)
21.36 to 34.17	47 (16.2%)
≥ 34.18	98 (33.8%)
Total	262
Work status before the pandemic	
Full-time employed/Self-employed	147 (50.7%)
Part-time employed	48 (16.6%)
Full-time student/ Part-time student	17 (5.9%)
Unemployed/Housewife/housebound	65 (22.4%)
Total	277
Work status currently	
Working as normal *(Key worker/working in the workplace)*	68 (23.5%)
Working from home *(Employed)*	105 (36.2%)
Furloughed/unemployed *(including unemployed and claiming benefits/not working?)*	117 (40.4%)
Total	290

*IMD: Index of Multiple Deprivation Quintile group (where ≥34.18 is most deprived 20% of Lower-layer Super Output Area, 2019);

Table 4 WIPPS Sect. 1 factor loadings subsequent to rotation

			WIPPS Sect. 1		Pattern coefficients	
Item number	N	Missing (%)	Item content	Original WIPPS subscale	Factor 1 *People*	Factor 2 *Place*
Q107_7	231	59(20.3)	People feel they can rely on each other around here.	Social Capital	**0.98**	−0.13
Q107_6	249	41(14.1)	People feel they can trust their neighbours around here.	Social Capital	**0.92**	−0.07
Q107_8	251	39(13.4)	People who live around here get on well together.	Social Capital	**0.91**	−0.10
Q107_2	240	50(17.2)	People seem satisfied with their lives here.	Mental Capital	**0.83**	0.11
Q107_1	252	38(13.1)	People seem happy here.	Mental Capital	**0.80**	0.08
Q107_3	169	121(41.7)	Around here people feel that the things they do in their lives are worthwhile.	Mental Capital	**0.73**	0.25
Q107_4	194	96(33.1)	People who live around here don't seem to be anxious.	Mental Capital	**0.73**	−0.05
Q108_3_	260	30(10.3)	Most homes in this area provide a good standard of accommodation for people.	Environment Capital	**0.58**	0.31
Q107_5	231	59(20.3)	It's easy to get involved in local activities and groups around here.	Social Capital	**0.58**	0.15
Q107_9	208	82(28.3)	On the whole, people who live around here enjoy good health.	Health Capital	**0.53**	0.35
Q108_4	276	14(4.8)	Most of the streets, roads and public spaces in this area feel safe to be in.	Environment Capital	**0.48**	0.43
Q108_7	198	92(31.7)	People have enough opportunity to find good quality jobs, training or education locally.	Economic Capital	−0.01	**0.84**
Q108_5	273	17(5.9)	It's easy to get around in this area without having to use a car.	Environment Capital	−0.14	**0.79**
Q108_6	272	18(6.2)	This area has everything people need on a day-to-day basis.	Environment Capital	−0.10	**0.78**
Q108_2	243	47(16.2)	Around here there are enough opportunities to do things that help to keep people fit and well.	Health Capital	0.19	**0.71**
Q107_10	250	40(13.8)	People who live around here can access local health services easily.	Health Capital	0.03	**0.67**
Q108_8	186	104(35.9)	Most households in this area have enough money to live well on.	Economic Capital	0.27	**0.66**
Q108_1	177	113(39)	Most people in this area have no trouble achieving their daily activities.	Health Capital	0.12	**0.64**
Q108_9	182	108(37.2)	People in this area are able to move up in the world.	Economic Capital	0.35	**0.64**
Q108_10	113	177(61)	People around here tend not to get into too much debt.	Economic Capital	0.38	**0.55**
			% of variance explained		57.42%	8.49%

rotation with a significant factor criterion of 0.45 after 'forcing' a two-factor solution (factor 1 = People; factor 2 = Place) in SPSS.

WIPPS Sect. 2 A PCA was conducted on the six items of WIPPS Sect. 2. The KMO value of sampling adequacy was 0.87 and Bartlett's test of sphericity reached statistical significance ($p < .001$). The eigenvalue of one factor exceeded 1 and that single factor explained 79.16% of variance. The scree plot confirmed a one-factor model. As only one factor was extracted, the solution could not be rotated. Table 5 includes the factor loadings.

Internal Consistency

The Cronbach's alpha coefficient was 0.98 overall, exceeding the recommended minimum value of 0.7 (DeVellis, 2012), as well as the higher and preferred value of 0.8 (Pallant, 2005), demonstrating an excellent level of internal consistency for the full scale in the data of this study. Additionally, good and excellent internal reliability was found for each factor. Table 6 includes the Cronbach's alphas for the sub-scales.

Table 5 WIPPS Sect. 2 factor loadings (Component matrix)

WIPPS Sect. 2 – Community wellbeing				
Item number	N	Missing (%)	Item	Factor 1: *Community Wellbeing*
Q109_2	204	86(29.7)	The people who live here feel they can take action to improve things and/or influence decisions made about the area.	**0.92**
Q109_6	225	65(22.4)	This area contributes positively to the wellbeing of the people who live here.	**0.91**
Q109_4	182	108(37.2)	No-one is left out in this community.	**0.89**
Q109_3	202	88(30.3)	The people who live here feel they belong here.	**0.88**
Q109_5	229	61(21)	This area has a physical environment that helps people to feel good and function well.	**0.87**
Q109_1	224	66(22.8)	There are strong networks of relationships and support between the people who live around here.	**0.87**
			% of variance explained	79.16%

Table 6 WIPPS Full scale and sub-scale internal consistency

Scale/sub-scale	Number of items	Cronbach's alpha (α)
Full scale	26	0.98
People	11	0.95
Place	9	0.93
Community wellbeing	6	0.95

Table 7 Spearman's correlation between WIPPS Sect. 1 sub-scales and BSCS sub-scales

Sub-scales	Correlation coefficient
WIPPS People	
BSCS Needs fulfilment	0.449**
BSCS Membership	0.511**
BSCS Influence	0.468**
BSCS Emotional connection	0.468**
WIPPS Place	
BSCS Needs fulfilment	0.444**
BSCS Membership	0.387**
BSCS Influence	0.303**
BSCS Emotional connection	0.303**

** Correlation is significant at the 0.01 level

Construct Validity: WIPPS and BSCS

A significant positive correlation was found between Sect. 1 of the WIPPS and the full BSCS scale, $r_3(283)=0.55$, $p<.001$. Additionally, Sect. 1 of the WIPPS also correlated with all BSCS sub-scales: needs fulfilment, $r_3(283)=0.45$, $p<.001$, membership $r_3(283)=0.49$, $p<.001$, influence $r_3(283)=0.41$, $p<.001$, and emotional connection $r_3(283)=0.41$, $p<.001$. Finally, the factor 1 (People) and factor 2 (Place) of the WIPPS Sect. 1 were significantly correlated with each of the BSCS sub-scale. Results are included in Table 7.

A significant positive correlation was also found between Sect. 2 of the WIPPS and the full BSCS scale, $r_3(260)=0.62$, $p<.001$ and between Sect. 2 of the WIPPS and all BSCS sub-scales: needs fulfilment $r_3(260)=0.44$, $p<.001$, membership $r_3(260)=0.54$, $p<.001$, influence $r_3(260)=0.51$, $p<.001$, and emotional connection $r_3(260)=0.51$, $p<.001$.

Aim 2: WIPPS, Mental Health and Area Disadvantage

The second aim of the study was to examine how this new measure of community wellbeing and its determinants correlated with symptoms of mental health and level of deprivation. Statistically significant negative correlations for both sections of the WIPPS and depression, anxiety, and deprivation data were found as reported in Table 8.

Table 8 Spearman's correlations between WIPPS, mental health and IMD.

Measure		N	Spearman's rho
PHQ-9	WIPPS Sect. 1 Total	286	−0.39 *
	Factor 1: People	255	−0.38*
	Factor 2: Place	226	−0.35*
	WIPPS Sect. 2	262	−0.36*
GAD-7	WIPPS Sect. 1 Total	285	−0.33*
	Factor 1: People	255	−0.32*
	Factor 2: Place	226	−0.29*
	WIPPS Sect. 2	261	−0.26*
IMD	WIPPS Sect. 1 Total	258	−0.40*
	Factor 1: People	230	−0.41*
	Factor 2: Place	202	−0.49*
	WIPPS Sect. 2	236	−0.40*

*Correlation is significant at the 0.01 level

Discussion

The analysis reported here had two main aims. First, it aimed to establish the structure, construct validity and reliability of the Wellbeing in Place Perceptions Scale (Pennington et al., 2021), a new measure of perceived community wellbeing and its individual, social, environmental and economic determinants. Second, it aimed to examine how the measure of perceived community wellbeing correlated with symptoms of common mental health as reported by residents of a relatively disadvantaged city region on the North West Coast of England during COVID lockdown, a time when the prevalence of common mental distress was reported to be high (Khan et al., 2020; Daly et al., 2020) and when the significance of community and neighbourhood functioning to individual functioning was gaining profile. (e.g. White & Van Der Boor, 2020)

The original formulation of the WIPPS was derived from a thematic meta-synthesis of evidence (Pennington et al., 2021) from a group of systematic reviews conducted by the community wellbeing evidence programme of the What Works Centre for Wellbeing (Bagnall et al., 2017b, 2018; Cambers et al., 2018; Pennington et al., 2018; Pennington et al.;, 2019). It was divided into two sections to explore, in combination, individuals' perceptions of how their area functioned to support the needs of its residents wider (determinants of community wellbeing) and the perceived level of community wellbeing itself. As described by the authors, its questions were designed to align with existing indicators of the subcomponents that made it up (e.g. ONS measures of subjective wellbeing and social capital). While the original formulation had five components in Sect. 1 and one in Sect. 2, the EFA conducted here indicated that the data best fitted a three-factor structure – two factors, named People and Place, within Sect. 1 and the single factor of community wellbeing in Sect. 2. Cronbach's alpha statistic suggested high internal reliability of the measure as a whole and the construct validity of the WIPPS was supported by significant positive correlations between its factors, its total score and the total and subscale scores of the BSCS. This demonstrates that the WIPPS taps into the same constructs as those measured by the BSCS while asking different questions in distinct ways.

Further support for the validity of the WIPPS and its 3 factors comes in the form of its significant negative correlations with the IMD data collected as part of the survey. These ranged from 0.4 to 0.49 all with significance at 0.01 level.

The WIPPS tool is a valuable addition to the available indicator set examining sense of community as it combines, within two short integrated sections, opinions about the determinants of community wellbeing with an overall sense of community functioning. These two sections, which can be used together or independently, use a percentage Likert scale aiming to maximise sensitivity to change in functioning following planned or unplanned alterations in place conditions. Furthermore, in using a flexible definition of place (See Pennington et al., 2021), the WIPPS can be used by different stakeholders in distinct settings and at different scales, depending on the nature of enquiry.

In line with prior research (e.g. Farrell et al., 2004; White & Van Der Boor, 2020) and addressing the second aim of the research, the WIPPS was found to correlate significantly with the two measures of common mental distress used in the survey – the PHQ9 and the GAD7. This shows that symptoms of mental distress are reported to be higher in those individuals who perceive that their place of residence supports lower levels of community wellbeing generally and which they perceive as functioning less well in support of the people who live there.

Together these findings attest to the importance of community functioning and neighbourhood characteristics as drivers of wellbeing and mental distress and provide a timely reminder that common mental distress is as much a societal as an individual issue. Thus, individual and place-based determinants of mental health are bound together in ways that are difficult to untangle, perhaps suggesting that it may be meaningless to try to do so (Cummins et al., 2007; McElroy et al., 2021). This has important implications for how society addresses and attempts to tackle the ever-increasing burden of common mental distress. Being less consistent with traditional individualised psychiatric and psychological approaches and more aligned with the population health approach, it supports more integrated policy making such as health and wellbeing in all polices (WHO, 2014) to sustainably prevent health, mental health, and wellbeing issues for our future generations. Accepting this premise suggests that the effective long-term treatment of common mental health concerns should no longer be the sole remit of the psychologist or the GP working with an individual 'service user' but rather requires the collaboration of health and non-health sectors to eradicate the unfair and unequal disadvantages that many communities face and which are measurable in the neighbourhoods of this and other nations (Marmot, 2020; Public Health England, 2017). The role of place and community in determining wellbeing and suffering is far from a new idea. However, for communities to effectively address their wellbeing needs, a different approach to funding and delivery of mental health care more focussed on prevention and towards addressing long-standing structural inequities is needed. With today's focus on levelling up in the UK having a clear link to wellbeing (Gov.UK, DLUHC, 2022; Hey, 2022) the role of our neighbourhoods, villages towns, cities and regions in addressing long-standing, intractable human concerns will be increasingly acknowledged.

The findings reported here require replication in other places, with other samples and at other times when societal concerns, behaviours and the prevailing mood

have returned to something more like pre-pandemic norms. The extent to which the COVID 19 context of data collection skewed the findings reported here is difficult to judge. This alone makes replication essential.

Assessing the extent to which the new measure is sensitive to planned and unplanned changes within places over time requires longitudinal data collection. While the survey we conduced was repeated after 12 weeks, unfortunately the drop out was significant, limiting our ability to report change over a 12-week duration of COVID restrictions. The changeable nature of the imposed restrictions during this 12-week period would also have influenced findings in relation to WIPPS responses as well as self-reported common mental distress.

The online household survey, of which these measures were a part, was launched on 15/06/2020 and was live until 03/08/2020. While the sample was reasonably representative of the city region in terms of deprivation, it was disproportionately female and relatively highly educated with these biases likely to have impacted the findings reported here for mental health especially as prior research has indicated that the mental health burden of the pandemic affected women more than men (e.g. Pieh et al., 2020). However, the educational profile of this sample might be seen as protective against high levels of common mental distress as could the employment profile with approximately 67% being in either part- or full-time employment.

In terms of the WIPPS measure itself, it was clear from the pattern of missing data across questions that some items felt easier to estimate than others. Responses to do with estimating others' individual wellbeing and their subjective financial circumstances seemed to be most likely to give rise to missing data, suggesting a relative lack of confidence in these particular estimates. Therefore, some further consideration as to the most appropriate response scale to use with WIPPS items is needed to enable respondents to provide answers they feel more comfortable with. For example, an alternative format might be a 5-point scale ranging from strongly agree to strongly disagree with a 'neutral' option at its midpoint.

In conclusion, the data analysed here suggests that the WIPPS is a valid and reliable measure of community wellbeing and its determinants. It gathers a collective, subjective view which is coherently structured to enable assessment of the drivers and facets of community wellbeing. As such it permits a proper engagement with this complex construct. Our data showed that one's sense of community wellbeing and opinions about how places serve their residents is bound up with one's self-reported mental health. This new measure provides a useful tool to explore community wellbeing and its determinants. Additionally, and perhaps more importantly, it provides a means to evaluate the efficacy and mechanisms of action of place-based policy interventions aimed at community functioning and wellbeing.

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Declarations

Competing interest None.

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