

SUPPLEMENTARY MATERIAL FOR NEUROURBANISM

Figure S1: title; Rural Vs. Urban population (1960-2017)

Figure S2: title; PRISMA approach

Figure S3: title; Visualization of the document co-citation network by institution/organization (Modularity $Q=0.4761$; Average silhouette score = 0.8449 ($Q, S=0.609$))

Figure S4: title; Visualization of the document co-citation network by country (Modularity $Q=0.4761$; Average silhouette score = 0.8449 ($Q, S=0.609$))

Table S1: title; Top 20 influencers/scholars on neurourbanism (by centrality)

Table S2: Cited countries and institutions

Text S1: Citespace

Text S2: Descriptive analysis

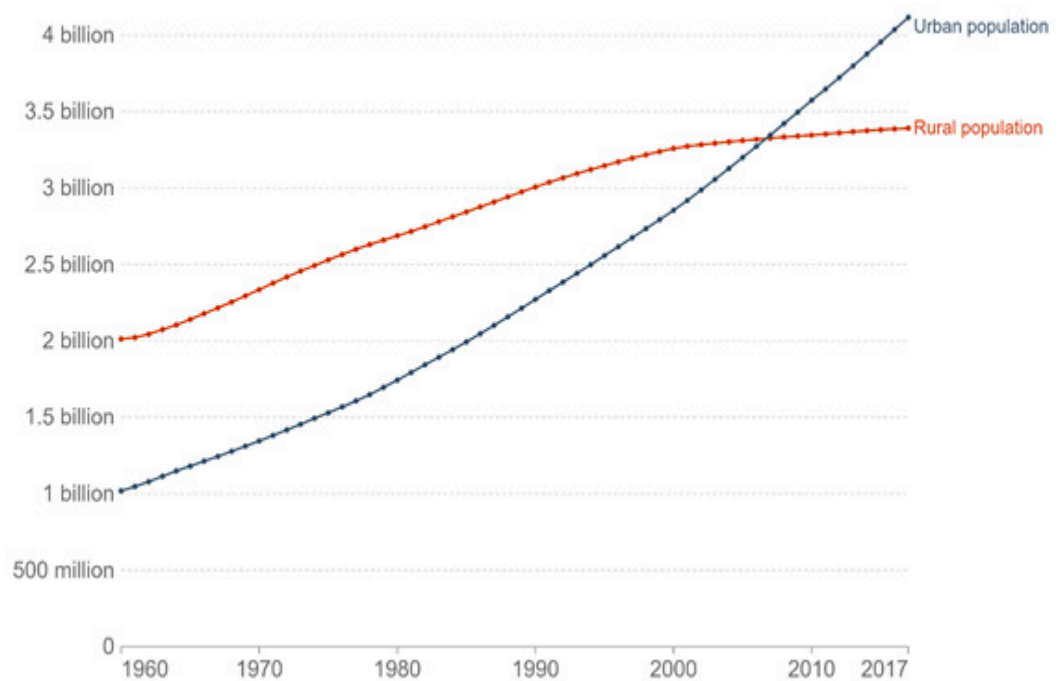


Figure S1: Rural Vs. Urban population (1960-2017)

Source: Ritchie and Roser (2019)

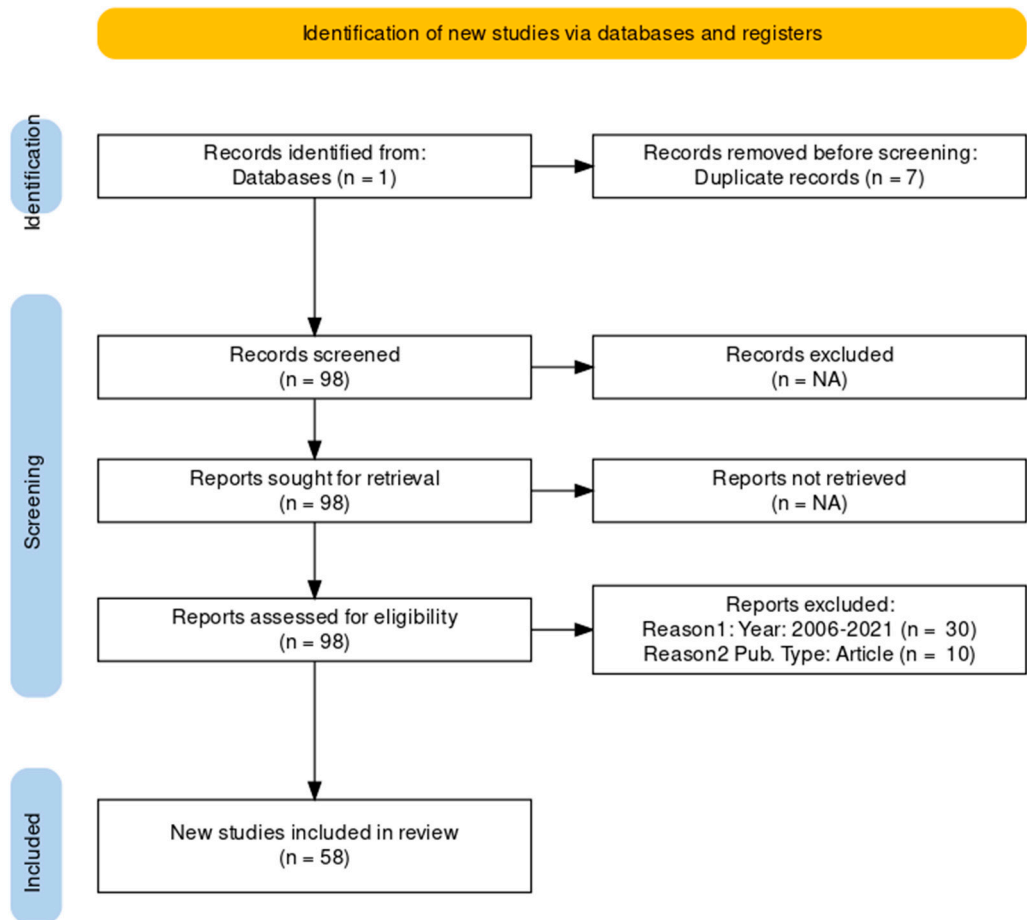


Figure S2: PRISMA approach



Figure S3: Visualization of the document co-citation network by institution/organization (Modularity Q=0.4761; Average silhouette score = 0.8449 (Q, S=0.609))

CiteSpace, v. 5.8.R1 (64-bit)
 September 8, 2021 6:00:52 PM AWST
 WOS: C:\Users\iemekan\OneDrive - Edith Cowan University\Desktop\Neuro\Neurourbanism\CiteSpace\Data
 Timespan: 2016-2021 (Slice Length=1)
 Selection Criteria: g-index (k=25), LRF=1.0, L/N=1, LBY=1, w=2.0
 Network: N=28, E=2 (Density=0.0053)
 Largest CC: 2 (7%)
 Nodes Labeled: 1.0%
 Pruning: None
 Modularity Q=0.4761
 Weighted Mean Silhouette S=0.8449
 Harmonic Mean(Q, S)=0.609

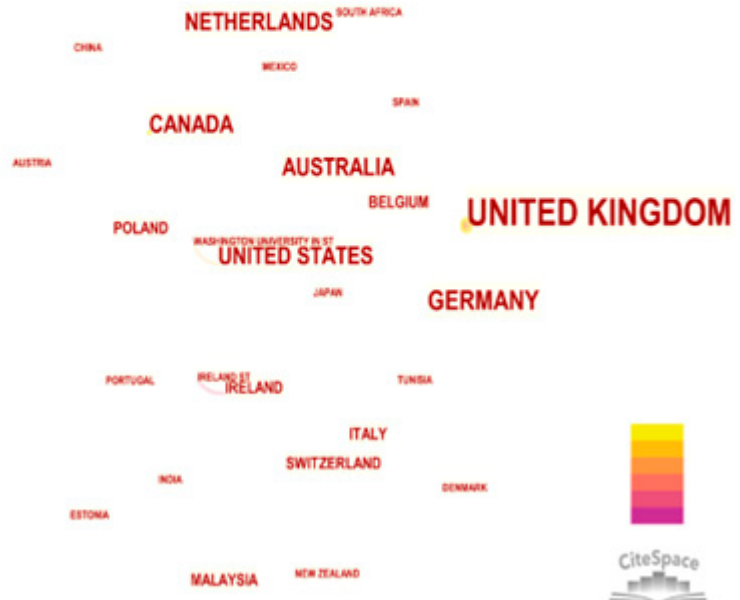


Figure S4: Visualization of the document co-citation network by country (Modularity Q=0.4761; Average silhouette score = 0.8449 (Q, S=0.609))

SUPPLEMENTARY DOCUMENT: Text S1: CiteSpace

After gathering the data, we utilized Citespace software package 5.8.R1 to analyze the generated results from PRISMA. Citespace is a software used to construct scholarly network connections between variables [44,45]. Citespace deals with homogeneity, preprecision, and connectivity of clusters [46], in constructing its conceptual and structural metrics. Chen, the developer of the software, argued that while the conceptual metrics are the visual illustration of the input [46], the structural metrics deal with the following: betweenness centrality, modularity Q, and silhouette score.

Betweenness centrality measures the degree of a node to another [47, 48]. As Golbeck explains, this measurement determines the flow of information throughout a network cluster[49]. The higher the centrality index, the chance of a stronger association. Blondel, Guillaume, Lambiotte, and Lefebvre argued that modularity Q gives credence to the measure of how relevant a cluster is in a network analysis or community structure [50]. The modularity Q test is insightful in identifying communities in networks since there are different properties, such as clustering coefficient, centrality, node degree, and betweenness [51], from an average node. For instance, a modularity Q of 0.7141 exhibits a high or lower than 5 may be too low [46]. The silhouette coefficient is a system of measurement for calculating the goodness of the clusters. The coefficient's value ranges between -1 and 1 [52], with 1 being the highest

and -1 the lowest [52]. Chen states that a figure of 0.3 is low and may not be significant but that 0.5 is homogenous in character [46].

Citespace maps the conceptual metrics of keywords based on themes by using two methods: LLR (Locally Linear Regression): Locally Linear Regression and TFIDF (Term Frequency Inverse Document Frequency): Term Frequency-Inverse Document Frequency. Newey demonstrates that LLR is a much more reliable statistical measurement tool compared to kernel regression[53]. LLR uses locally fitting lines rather than a constant and has a lesser tendency for bias, particularly when the model is linear. In statistical analysis, the LLR test is utilized for comparing good of fit between two statistical nodes. In this case, it compares the TFIDF, mutual information (MI), and cluster labels (USR) to generate the LLR. According to Shi and Liu, LLR can be used to estimate the p-value or, in comparison to a critical value, to either accept or reject the null hypothesis[54]. According to Havrlant and Kreinovich, tf-idf is a commonly used method for keyword detection[55].

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SUPPLEMENTARY DOCUMENT: Test S2: Descriptive analysis

Text S2 provides the descriptive results following the DCA network publication by authors and the Top 20 influencers/scholars on neurourbanism (Table S1). In the section that follows, the study discusses document co-citation network publication timelines and spotlight by citation.

Table S1: Top 20 influencers/scholars on neurourbanism (by centrality)

Count	Centrality	Year	Cited reference	
28	0.65	2017	Adli M, 2017, <i>The Lancet Psychiatry</i> , V4, P183, DOI 10.1016/s2215-0366(16)30371-6	[2]
21	0.45	2019	Fett AJ, 2019, <i>Current Opinion in Psychiatry</i> , V32, P232, DOI 10.1097/ycp.0000000000000486	[5]
10	0.14	2009	Peen J, 2009, <i>Acta Psychiatrica Scandinavica</i> , V121, P84, DOI 10.1111/j.1600-0447.2009.01438.x	[56]
10	0.12	2012	Vassos E, 2012, <i>Schizophrenia Bulletin</i> , V38, P1118, DOI 10.1093/schbul/sbs096	[57]
17	0.09	2011	Lederbogen F, 2011, <i>Nature</i> , V474, P498, DOI 10.1038/nature10190	[58]
6	0.05	2013	Aspinall P, 2013, <i>British Journal of Sports Medicine</i> , V49, P272, DOI 10.1136/bjsports-2012-091877	[59]
13	0.04	2010	van Os J, 2010, <i>Nature</i> , V468, P203, DOI 10.1038/nature09563	[60]
8	0.04	2014	Haddad L, 2014, <i>Schizophrenia Bulletin</i> , V41, P115, DOI 10.1093/schbul/sbu072	[61]
2	0.04	2014	Gravenhorst F, 2014, <i>Personal and Ubiquitous Computing</i> , V19, P335, DOI 10.1007/s00779-014-0829-5	[62]
7	0.03	2001	Pedersen CB, 2001, <i>JAMA Psychiatry</i> , V58, P1039, DOI 10.1001/archpsyc.58.11.1039	[63]
7	0.03	2017	Frissen A, 2017, <i>Psychiatry Research Neuroimaging</i> , V271, P100, DOI 10.1016/j.psychresns.2017.11.004	[64]
6	0.03	2015	Gascon M, 2015, <i>International Journal of Environmental Research and Public Health</i> , V12, P4354, DOI 10.3390/ijerph120404354	[65]
5	0.03	2016	Gong Y, 2016, <i>Environment International</i> , V96, P48, DOI 10.1016/j.envint.2016.08.019	[66]
10	0.02	2018	DeVylder JE, 2018, <i>JAMA Psychiatry</i> , V75, P678, DOI 10.1001/jamapsychiatry.2018.0577	[67]
4	0.02	2012	Abbott A, 2012, <i>Nature</i> , V490, P162, DOI 10.1038/490162a	[68]
7	0.01	2016	Söderström O, 2016, <i>Health & Place</i> , V42, P104, DOI 10.1016/j.healthplace.2016.09.002	[69]
7	0.01	2017	Gruebner O, 2017, <i>Deutsches Arzteblatt Online</i> , V114, P121, DOI 10.3238/arztebl.2017.0121	[70]
6	0.01	2017	Söderström O, 2017, <i>Psychosis</i> , V9, P1, DOI 10.1080/17522439.2017.1344296	[71]
5	0.01	2015	Rapp MA, 2015, <i>World Psychiatry</i> , V14, P249, DOI 10.1002/wps.20221	[72]
5	0.01	2018	Manning N, 2018, <i>Social Theory & Health</i> , V17, P1, DOI 10.1057/s41285-018-00085-7	[73]

Table S2: Cited countries and institutions

Cited countries	Count	Year	Institution/ Organisation
United Kingdom	11	2017	University of Birmingham King's College London University of London De Montfort University University of Cambridge Glasgow Caledonian University
Germany	5	2017	Technical University of Munich Humboldt-Universität zu Berlin Charité – Universitätsmedizin Berlin Max Planck Institute for the History of Science
Canada	4	2020	University of Waterloo
United States	4	2018	Virginia Tech NorthWestern University University of Virginia Washington University in St
Australia	4	2017	University of Melbourne Deakin University University of Western Australia Western Sydney University
Netherlands	4	2017	VU Amsterdam Maastricht University Utrecht University
Belgium	2	2020	
Switzerland	2	2020	University of Neuchâtel University of Basel
Ireland	2	2017	University College Cork
Malaysia	2	2020	MARA University of Technology
Italy	2	2020	Polytechnic University of Turin University of Perugia
Poland	2	2021	Warsaw University of Life Sciences
Ireland	1	2017	James's Hospital
South Africa	1	2021	University of Cape Town
New Zealand	1	2020	University of Otago
Lithuania	1	2021	Vilnius Gediminas Technical University
Austria	1	2020	
Japan	1	2020	Kyoto University
Spain	1	2020	Pompeu Fabra University
Portugal	1	2018	
China	1	2018	Fudan University
Estonia	1	2021	
Tunisia	1	2021	Tunis El Manar University

Denmark	1	2019	Aarhus University
Mexico	1	2021	Universidad Juárez Autónoma de Tabasco
India	1	2020	
France	1	2020	University of Lausanne University Hospital of Lausanne
Singapore	1	2018	National University of Singapore