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DOI:
10.1016/j.socscimed.2022.115619

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (Harvard):
Members of the Institute for Mental Health Youth Advisory Group 2023, 'Urban precarity and youth mental health: an interpretive scoping review of emerging approaches', *Social Science and Medicine*, vol. 320, 115619. https://doi.org/10.1016/j.socscimed.2022.115619

Social Science & Medicine 320 (2023) 115619

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Urban precarity and youth mental health: An interpretive scoping review of emerging approaches

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ARTICLE INFO

Handling Editor: S Susan J Elliott

Keywords:
Cities
Inequalities
Interdisciplinarity
Mental health
Scoping review
Social model
Social theory
Youth

ABSTRACT

Circumstances of living are key to shaping emotional and affective experiences, long term health, wellbeing and opportunities. In an era characterised by rapid urbanisation across the majority of the world, there is increasing interest in the interaction between mental health and urban environments, but insufficient attention is paid to how mental health is situated in space and time. Socio-economic inequalities are prevalent in many urban environments globally, making conditions of living highly precarious for some social groups including young people. There remains a large volume of unmet mental health service needs, and young people are impacted by uncertain economic futures. The purpose of this scoping review is to develop an interdisciplinary and globally-informed understanding of the urban conditions which affect youth mental health across a range of scales, and to identify protective factors which can promote better youth mental health. We seek to broaden the scope of urban mental health research beyond the physical features of urban environments to develop an interpretive framework based on perspectives shared by young people. We illustrate how concepts from social theory can be used as an integrative framework to emphasise both young people's lived experiences and the wider cultural and political dynamics of urban mental health.

1. Introduction

Poor mental health is said to be the leading cause of disability amongst young people globally (Erskine et al., 2017). Although it is known within the Global North that serious mental health problems are frequently diagnosed before the age of 19, it is widely considered that the mental health of adolescents and young people has both been overlooked in terms of unmet health needs (Azzopardi et al., 2019; Patton et al., 2016; WEF, 2020). Social inequalities impact young people in particular as they establish and shape their particular life courses (Farahmand et al., 2012; Toivanen et al., 2020). Against this background, there has been an increasing interest in how living in urban environments affects mental health. Cities have long been viewed as riskier than rural environments in terms of everyday life, health and wellbeing, although they are clearly also spaces better served by healthcare and employment opportunities. Moreover, urban living is not uniform across high and low income countries, nor within them. The features of urban environments that are identified as key contributors to poor mental health have been described as 'toxic exposures' (Caracci, 2008:387). More broadly, global shifts in education, employment,

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https://doi.org/10.1016/j.socscimed.2022.115619
Received 22 March 2022; Received in revised form 9 October 2022; Accepted 13 December 2022
Available online 21 December 2022

technology, migration, conflict, as well as urbanisation, are regarded as powerful forces in shaping individual health and development (Bhugra, D., Ventriglio et al., 2019; Ventriglio et al., 2020). Consequently there is a need to bridge the two concerns of youth and urban mental health to advance understanding of how these global shifts, urban processes and conditions are experienced by young people. It has also been argued that youth urban mental health research requires the development of theories from diverse epistemologies beyond psychology and psychiatry in order to take these broader social phenomena into account (Buttazzoni et al., 2022; Fleckney and Bentley, 2021:1).

In this scoping review carried out in 2020 we focus on the relationship between urban mental health and young people, with specific reference to socio-economic inequalities and societal circumstances of 'precarity' existing before the global COVID-19 pandemic. Since this time, there has been growing interest in urban mental health research, and the impacts of national quarantines, school closures, COVID restrictions, health anxieties and social isolation on adolescent mental health have been well-documented (Creswell et al., 2021; JHU and UNICEF, 2022). Indeed, it has been widely argued that the pandemic has radically altered people's relationships with experiences of urban living, but the long-term impacts on the 'post-COVID city' are as yet unknown (Martínez and Short, 2021). In this paper we provide analysis of neuroscientific, epidemiological and psychiatric research which has started to engage with the disciplines of urban planning, urban sociology, geography, architecture and urban design in order to better understand what the future holds for individuals' mental health in the context of a rapid increase in the global population living in cities (Adli et al., 2017; Krabbendam et al., 2020; Lederbogen et al., 2011).

In this review, we define the 'urban' and 'urbanicity' rather differently than in the contemporary psychiatric and neuroscientific literature, and we use the concept of *neuropolis* as a shorthand for understanding the urban both as a space of embodied and biological experience and as a political sphere (Fitzgerald et al., 2016). This concept advances the 'ecosocial' approach of Krieger (1994) and the 'neuroecosocial' approach (Rose et al., 2021; Rose and Fitzgerald, 2022), which are theoretical approaches aimed at generating interdisciplinary collaborations. We use the concept of 'neuropolis' as an umbrella term to acknowledge the collective and entangled social, economic and political dimensions of mental health, whilst acknowledging that the experience of human beings inhabiting cities can also be understood through a neurobiological disciplinary lens – i.e. that there are 'real' biological differences between urban and rural dwellers, but that the boundaries between these two categories remain ill-defined.

The experiential practices of 'niching', urban mobility, atmospheres of recovery and assemblages of health highlighted by anthropologists and geographers (e.g., Bieler and Klausner, 2019; Duff, 2016; Winz and Söderström, 2021) could have offered an alternative entry point. This entails going "beyond social determinants" of urban mental health, not only to build on new insights from neuroscience, epidemiology and biological psychiatry, but to better capture a sense of agency, experience, and the specific politics of urban circumstances, namely the:

> "moulding and marring of mental life in conditions of precarity and adversity, and the socio-political strategies necessary to build the capabilities that can enable human beings individually and collectively to make lives for themselves within the fluctuating circumstances in which they live" (Rose et al., 2021: 14).

We therefore expand current conceptions of urban stressors in the built environment, to incorporate a more diverse understanding of both the driving forces of urban spatial qualities and the social experiences of urban living. In this paper we thus conceptualise the 'urban' as heterogenous and changing (Baumann et al., 2020) and 'urbanicity' as a *dynamic process* involving the interplay between different factors, social, economic, environmental, and political, operating at different levels of the urban (Marcal, 2017) to shape mental health. Our definition aims to capture the shifting shape of urban spaces, rather than view urban residents as static. We view the city as both the product and generator of social relations (Harvey, 1978, in Fu, 2018). This places an emphasis on the historically and geographically specific *imaginary* of the urban as a public, cultural and political sphere. It requires making connections between urban governance and emotional experience, which are both subject to representation, contestation and change. The studies that are described in this review include high income and lower and middle income countries (LMIC), wherein the historical, political, cultural, social and economic drivers for urban development differ significantly – this offers a challenge to a simple comparative analysis. Confounding factors such as gender, socio-economic and ethnic differences in urban mental health, have been unpacked across a range of international contexts (e.g., Chandra et al., 2018; Christiani et al., 2015; Quimby et al., 2018). However, evidence of the interactive social, cultural and psychological effects of urban living specifically for young people is lacking.

In order to build on the reflexive social model of mental distress (Tew, 2017), the review also looks beyond the framing of 'risk' factors, towards the multiple meanings and experiences of urban living for young urban dwellers. The research team bring new disciplinary perspectives on mental health, ranging from anthropology, social policy and human geography to participatory methods research. One central distinction in this respect is an emphasis on what mental health means, rather than how it can be diagnosed and measured. The social model has been advanced by mental health professionals, academics, researchers with lived experience, service user groups and survivor movements (D Rose, 2017; Callard and Rose, 2012). Similarly, sociological and humanities scholarship has proposed that mental health diagnostic classifications be understood as "variable and unstable definitions" (Manning, 2019:16), and as "cultural and political phenomena" (Cvetkovich, 2012: 1). This position proposes that mental ill health is a reasonable response to the state of the world, and is experienced differently in different times, spaces and cultures. For instance, it has been proposed that depression and anxiety have diverse meanings among young people in different cultural contexts, which has implications for the effectiveness of interventions imported from elsewhere (Iwata and Buka, 2002). In this way, mental health diagnoses are social formations which have real effects and functions in terms of identity formation, treatment regimens and policy, which can only be fully understood in the context of their application (N Rose, 2019:73). For these reasons we focus our review on mental health rather than specific diagnostic conditions or the vocabulary of mental 'illness' or 'disorder'.

The wider concept of *ontological insecurity* is used as a perspective through which to extend this social model of mental distress. This highlights the embodied, social and dynamic nature of emotional life in urban contexts. Ontological insecurity refers to phenomena that pose a threat to a person's sense of consistency with their self. While precarity can denote a sense of economic or housing insecurity, ontological insecurity in one's sense of self/being refers to a feeling of loss or discontinuity in regard to events in one's life and one's relatedness to the world. Originally proposed in R.D. Laing's (Laing, 1960 [1965]: 90) study of existential anxiety, ontological insecurity refers to "the precariousness of an individual's subjective sense of his [sic] own aliveness, and the sense of others threatening this tentative feeling". The concept also reflects a sense of *temporal* consistency with one's sense of self, and as Giddens (1991: 55) has described, is maintained through predictable routines, bodily self-management and the simultaneously "robust and fragile" practice of narrating one's self-identity. Giddens conceives of this existential state sociologically as a condition of reflexive modernity characterised by transformative shifts in social organisation over the course of the 20th Century, namely industrial capitalism, the emergence of social surveillance and the pre-dominance of the nation-state (1991: 15–16). In this way, one's ontological security is socially embedded and shaped by how a person "*lives* a biography reflexively organised in terms of flows of social and psychological information about possible ways of life" (Giddens, 1991: 14). This can be threatened not only by the kind of radical disruptions to one's situation associated with precarious living

such as homelessness, mental distress, discrimination, slow violence or misrecognition, but by the kinds of (reflexive) psychological and sociological knowledge on offer to make sense of these situations.

Our objective is to advance a novel theoretical approach to reviewing a sample of existing literature across a range of disciplines in order to investigate multiple disciplinary perspectives on the *conditions* of urban precarity which shape the mental health of young people, the *processes* proposed for understanding how reducing urban precarity might prevent and ameliorate poor mental health among young people, and the main *protective factors* which mitigate against the negative effects of urban precarity on the mental health of young people. Precarity is defined by social scientists as "a political condition that is the consequence of uneven power relations and refers to the exacerbation of the precariousness of some subjects compared to others" (Harris and Nowicki, 2018: 387). The concept of precarity generally refers to a lack of social and economic stability and can be characterised by poverty, displacement, criminalisation and exclusion (Fine et al., 2016). Populations that are specifically precarious may include, amongst others: refugees; those who are homeless, living in slums or the poorest neighbourhoods; people who have pre-existing mental health problems; people who suffer stigma, discrimination or marginalisation. We draw attention here to the increasing precarity of young people and the negative impact on their mental health.

Uncertainty, a lack of control and stability, limited social and material resources are central to the concept of social precarity. The facility of the term to capture both the inward state of precariousness alongside the external conditions which exacerbate the feeling of uncertainty gives the term a specific relevance for considering the mental health impacts of late capitalism. Precarity thus connects the *unequal and historically specific socio-economic conditions of living* (neoliberal economic policies, welfare austerity, employment, housing and environmental insecurity) with the *dynamics of emotional vulnerability* (Philo et al., 2019:151). In this sense, precarity is defined as a cultural and social phenomena, which connotes the lived experience of vulnerability in particular societal situations, without conflating vulnerability with risk. This avoids the methodological individualism that has been argued as characteristic of wellbeing research (Atkinson, 2013) and mental health science. Our approach reflects a current shift away from components-based, active ingredients of interventions, or individual models of vulnerability towards population-level prevention (Patton et al., 2021). This approach is necessary to address the current extent of youth mental distress as a multi-level, complex societal problem.

After describing the review methods in section 2, section 3 examines the urban conditions, processes and protective factors identified in our review of urban mental health research. Here we bring together our two key concepts of *ontological insecurity* and *neuropolis* to provide a critical interpretation of this evidence on urban precarity and youth mental health, and we establish some key research gaps. In the discussion we identify the steps that can be taken to co-develop a research agenda which engages directly with young people to promote interdisciplinary mental health research.

2. Methods

In order to explore the implications of urban mental health research for the emotional lives of young people transitioning to adulthood and socio-economic independence from a more interdisciplinary perspective, we adopted a scoping review methodology to survey the field (Peters et al., 2015). As noted above, we focused on mental health rather than specific mental disorders. We framed our review around three research objectives relating to *conditions* of urban precarity shaping the mental health of young people, *processes* and *protective factors*. We used wide, relevant search terms to pick up on literature from outside the medical sciences. This had the purpose of eliciting critical reflection and advancing theoretical understandings, rather than summarising and describing the availability of data (Greenhalgh et al., 2018:3). We applied the tools of critical social theory (in particular the concepts of *neuropolis* and *ontological insecurity*) to our review to examine the links between urban precarity and youth mental health. This critical analysis provides a structural interpretation of historically and geographically specific discourses and experiences of youth mental health. The quantitative outcomes of papers with such diverse methodologies were not subject to meta-analysis and the quality of studies was not assessed. The search strategy was not limited to specific dates, to allow us to take into consideration historical references and the evolution of approaches to urban mental health.

2.1. Phase 1: search strategy

The first author (Pykett) conducted the original search on June 08, 2020. Databases searched were Scopus, ProQuest, OvidPsychINFO, Web of Science, PubMed Central. A Google Scholar internet search was also carried out, and manual handsearching of the first author's own sourced references. The search terms used are shown in Fig. 1.

A two stage screening process of titles and abstracts of the search results was conducted by Pykett (40%), Gagen (30%) and Williams (20%) according to the inclusion and exclusion criteria set out below (Fig. 2) and following PRISMA guidelines (see supplementary material 1). Stage 1 had the purpose of eliciting broad coverage of the relationship between precarity and urban mental health, not just necessarily focusing on young people. This is because papers did not always specify their target population in the title/abstract, because the category of 'young people' includes people over 18, and we acknowledge that many urban factors affecting mental health may be applicable to both adults and young people. We were primarily interested in young people transitioning to adulthood and socio-economic independence, acknowledging that the definition of youth is often culturally and geographically specific. We therefore did not include the search term 'child*' although we recognise that children may be economically active in some regions globally. The wide term 'mental health' was used to elicit results concerning emotional life in urban environments, aligning with the account of ontological insecurity outlined above (see supplementary material 4 for the search strings used). Articles were included also if they included topics relevant to urban precarity which may not be specifically urban (e.g., insecurities resulting from welfare reform, employment, education, housing/homelessness).

Stage 2 screening (Fig. 3) aimed to identify the key articles which specifically investigate the *relationship* between precarity, urban environments/characteristics and mental health (more narrowly defined rather than through proxies). Discussion on the exclusion criteria continued over email and project meetings and disagreements were resolved by including the disputed text in the review processes.

Data were extracted by seven reviewers (Pykett (43%), Fenton (9%), Gagen (12%), Lavis (9%), (9%), XX Newbigging (9%), Williams Parkin (9%)), using a template for consistency (see supplementary material 2), and input into an Excel spreadsheet. Details recorded included:

- a descriptive summary (author, year of publication, origin country of first author, participants of interest, study aim);
- a content analysis (definition of urban, urban characteristics associated with mental health, causal explanation given, processes or pathways identified between urban space and mental health, protective or preventative factors, research gaps identified in the articles);
- an interpretive analysis (relevance to concept of neuropolis, ontological (in)security, and how precarity was being defined).

Thematic analysis was conducted by five reviewers (Pykett, Fenton, Gagen, Lavis, Newbigging), who developed inductive coding from the material recorded in a spreadsheet and deductive coding from the interpretive categories. This involved identifying a theme for each publication, and summarising other publications which fit into this

Key words	Search Terms used
urban	"urban" OR "city"
Mental health	"mental health"
Precarity	"precarity" OR "precarious"
Population	"young" OR "youth" OR "adolescent" OR "adolescence"

Fig. 1. Literature search terms.

theme, iteratively developing new sub-themes and refining the hierarchies and order of themes as necessary through the process.

2.2. Phase 2: consultation and analysis with young people

During the second phase of the review process we consulted with a mental health research youth advisory group based in a large city in the UK. We involved young people in order to: (1) develop better understandings of the perceived impacts of the urban environment on young people's experiences of mental health – to validate our analysis; and (2) to develop a framework to inform research with young people on what they see as the most pressing research priorities in the field of urban mental health (after Levac et al., 2010; O'Brien et al., 2010). Involving young people was valuable in identifying grounded analytic themes (control, comfort, conflict and choices) which they regarded as relevant to their emotional experiences in cities (see section 3.1) and gave us an opportunity to test and refine the theoretical approach we were advancing to undertake the review. This was done at interim stage in the review process to shape our research priorities (see Fig. 4, results section). Involving communities is widely regarded as important in ensuring that recommendations arising from health research meet authentic needs and priorities (Cusworth Walker et al., 2022). We (Pykett, Gagen, Campbell) conducted 4 group discussions in July and September 2020 and March and November 2021 via online video meeting (due to COVID-19 regulations) with a total of 9 participants (5 female, 4 male) aged between 18 and 25, who live or have lived in urban areas across the UK. They were paid members of an institutional youth advisory group made up of young people with experience of, or a strong interest in, mental health difficulties. The first discussion session (n=7) was aimed at gathering young people's initial perspectives on the links between cities and mental health, and the subsequent two sessions involved presenting back our interim analysis (n = 4; n = 2) and finally developing a collaborative summary (n = 5) to organise these perspectives into themes.

2.3. Limitations

One limitation of our search strategy is that we included several older references which may seem dated as evidence. However, we read them in the context of their time period. Despite this, the search strategy may also have missed out relevant older references which did not use the vocabulary of 'precarity' and/or 'mental health' which may be more recent terminology. A second limitation is that we searched for 'mental health' rather than 'mental*', which may not have produced results specifically for mental disorder(s). We provide the rationale for this strategy in the introduction. Consequently, the search strategy may have been too broad to retrieve results which are specific to populations with particular mental health conditions. A third limitation is that we had only a small number of young people involved in our group discussions, limiting the diversity of perspectives and potentially the representativeness of the group across demographic characteristics and geographical locations. Finally due to time constraints we had to limit our database results, therefore this scoping review necessarily represents a sample of the literature.

3. Results

The search strategy resulted in the identification of 13,188 articles (see supplementary material 1: PRISMA diagram). Because this was a time-limited review process, results from each database were sorted by relevance (automatically by the databases) and limited to a maximum of the first 200 results – a total of 1341. After duplicates were removed, 1146 records (titles and abstracts) were screened at stage 1, and 761 were excluded with reasons specified on the PRISMA diagram. At stage 2385 titles and abstracts were screened using the second set of exclusion criteria, resulting in 107 publications for full text review.

The publications reviewed included journal articles and book chapters published between 1974 and 2020, with the vast majority (99) published since 2000 (see supplementary material 3: key characteristics of reviewed studies). 70% of the publications were by first authors based institutionally in Australia, Canada, UK or USA, and 19% were from first authors in Low and Middle Income Countries (LMICs). This represents a global imbalance in urban mental health research, albeit reflecting that our search strategy was limited to English language publications. The most common disciplinary perspectives were medical, psychological sciences and psychiatry (44%), followed by social sciences (38%). Few publications were from public health/epidemiology (9%), (urban) design and architecture (5%) or humanities (3%). This suggests an untapped potential for interdisciplinary advancement with these disciplines. The most common publication types were discussion papers and reviews (44%). 30% of articles involved interviews, ethnographic or participatory methods. 15% were cross-sectional surveys and 8% were longitudinal, while only three studies were trials or laboratory based studies. In terms of the target populations, 36% of the publications stated a focus on children or young people, 39% a general or adult population, and the remainder unstated. We grouped the material extracted from the articles into three key thematic areas aligned with our three research objectives and used the concepts of neuropolis and ontological insecurity to analyse the reviewed material.

3.1. Youth perspectives on urban mental health

To address the lack of co-produced research on urban mental health, we developed an experience based framework to be used for engaging young people with research on urban mental health from a thematic analysis of group discussions with our youth advisors (see Fig. 4). This aimed to go beyond the isolation of urban characteristics to build an integrated picture of the emotional dynamics of urban living. The youth advisors described a range of impacts of living in and moving through urban spaces which we have categorised as *control, comfort, conflict* and *choices*. These reflect the emphasis of the neuropolis concept on political agency (conflict and choices), and the experiential dynamics

Inclusion criteria	Exclusion criteria
Published in English	Not published in English
The source investigates mental health, emotional life or identity in urban environments, including: • urban characteristics or conditions (including built environment, architecture, neighbourhoods, urban community, city, urbanicity, urban density, urban services), or rural-urban differences; • causes and processes (mechanisms/pathways); • interaction of factors in urban environments which impact mental health, such as homelessness, labour market conditions, health inequalities, cultural factors; • protective factors which can mitigate against poor mental health or mental health inequalities; • system level prevention or interventions strategies.	Sources are not substantially relevant to understanding mental health, emotional life or identity
Examines the relationship between precarity/vulnerability/inequality/insecurity and mental health Precarity is defined here as the negative *emotional vulnerabilities* of unequal and historically specific *socio-economic conditions of living* (Philo et al 2019)	Sources are not about urban environments or characteristics
Are about young people/adolescents or relevant to young people/adolescents (ages 16-25). This could include papers about childhood or families, or specific groups of young people (ethnic groups, migrants, asylum seekers, homeless, sex workers, gendered, prisoner/juveniles), or adults in general	Populations covered are too specific (e.g. older adults, young people with developmental disabilities rather than mental ill-health, or unlikely to include young people: academics or social workers)
Any publication type including: primary and secondary studies, systematic review, research paper, clinical trial, grey literature, meta-analysis, narrative review, theoretical analysis, report, books, book chapters	Sources are blogs, news articles or news announcements, theses/dissertation abstracts, conference papers/proceedings, book review, TV episode, country profile
Any study design (both qualitative and quantitative)	
Sources have no start date restrictions, and an end date of 08 June 2020. Start date depends on the start of the database searched	

Fig. 2. Stage 1 screening criteria.

Inclusion criteria	Exclusion criteria
Makes a connection between urban environments/characteristics and mental health	Does not make a connection between urban environments/characteristics and mental health
Mental health is the primary outcome	Mental health is not the primary outcome (exclude proxies such as: emotional life, identity, 'delinquency', aggressive behaviour, sexual health, school dropout/attainment, addiction, obesity)

Fig. 3. Stage 2 refined screening criteria.

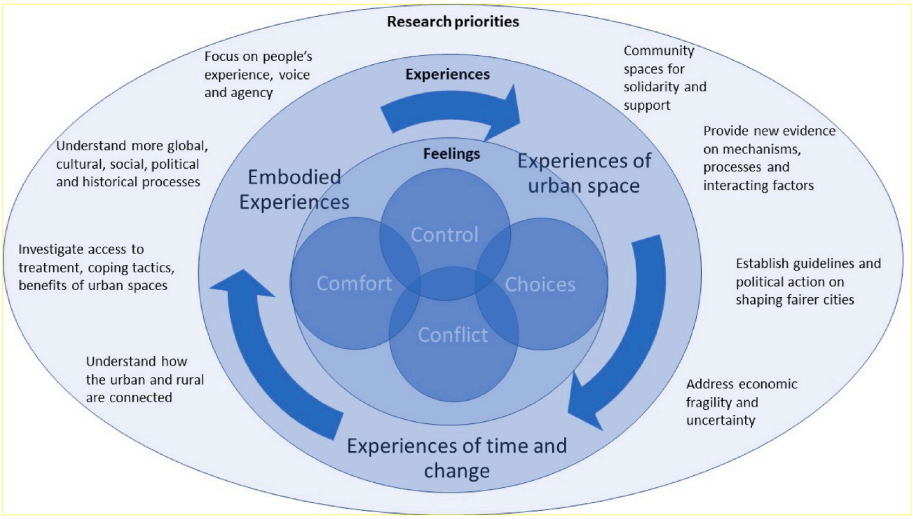

Fig. 4. Co-produced framework of urban experiences and priorities for urban mental health research.

foregrounded by ontological insecurity (comfort and control). The framework pointed towards the need to explore experiences of emotional life as embodied, spatial and temporal, with an overall aim to lead to real world improvements in young people's mental health. This opens out discussions of feeling, in contrast to discipline-specific discourses of 'risk' and 'brain vulnerability' (Crossley et al., 2019).

In terms of *control,* our youth advisors identified concerns around insecurity and personal safety, for instance witnessing crime and violence, being disturbed by sexual violence, drug dealing and prostitution in their local areas, and homophobic attacks. This reflects some of the concerns around violence and gender norms identified by the 2021 Global Early Adolescent Study reported by UNICEF (JHU and UNICEF, 2022). Youth advisors also highlighted feeling vulnerable to interference from others and a surveillance culture in cities which made them feel watched. By contrast, some felt that green spaces including parks could afford them a sense of control over unsupervised spaces without CCTV, and without the need to spend money to participate in urban space (e.g., shops, cafes).

The youth advisors offered vivid descriptions of their experiences of *comfort* and discomfort in cities they inhabit. These were spatial, temporal and embodied feelings. Spatially, urban living sometimes induced "feelings of existential isolation" which was experienced negatively, as a depressing feeling of not mattering to a wider urban system, and not belonging to a particular community, of being a "cog in the machine". Temporally, urban living was contrasted to a sense of a past ideal of a more meaningful rural community, which connoted a sense of social connection. Their embodied experiences included putting up social barriers such as avoiding eye contact, feeling like the urban space was overwhelming, headache-inducing, generating feelings of discomfort resulting from "people breathing next to me", feelings of dissociation and being smothered – "drowning in a sea of people". We therefore learnt from their experiences that urban living relates not only to immediate embodied feelings and senses, but to more existential assessments of evaluating one's one ontological security within the urban system. The 'urban' here functions as a set of ideas, metaphors and a material and symbolic environment with unobservable properties for which a social theoretic perspective can provide insight. Their experiences thus supported the rationale for the mode of interdisciplinarity proposed for the review process because they described their mental health being affected by urban space across a range of geographical scales and temporalities. These ranged from the immediate and proximate to past imagery and future economic and social expectations. They described urban experience both in relation to urban forms and types of space (e.g., green spaces) and types of polity, which suggest a need to mobilise an interdisciplinary perspective able to combine these multiple meanings of the urban. They also highlighted the insufficiency of recording data on variables such as green space or crime without understanding people's daily and particular experiences of these phenomena.

As such, the advisors also viewed urban spaces as socially divided, as spaces of *conflict.* This included a sense of conflict over public spaces, the loss of space to property developers, conflict between transient populations, political divides, health inequalities and socio-economic inequalities – leading to a lack of social mobility and neighbourhood

decline. As with control and comfort, this sense of conflict was also experienced temporally, experienced with a sense of foreboding and uncertainty about the economic future of a particular area, or their own financial prospects. These experiences of urban space were not only immediate and visceral but mediated by what advisors described as the "image of a place" as portrayed by the media. In addition, some identified the wider geopolitical context (at this point in time, perceptions of ethnic identity conflict, political division around Brexit, economic globalisation, and a lack of good systems of political representation) as sources of urban conflict which impacted their emotional state. In this way, we learnt from the youth advisors that there is a need to analyse the specific spatial imaginaries relating to urban mental health research rather than approaching space as a container for sets of variables and risk factors for mental health. The concept of neuropolis is useful in this regard for outlining the contributions of sociological understandings of the city as a space of encounter, inequality, power and dominance. It also pays attention to place-making – the city a space which people actively make rather than only respond to (Fitzgerald et al., 2016: 226).

Finally, the young people were keen to stress how subjective and diverse their experiences of urban living are, as well as the positive *choices* and opportunities afforded by cities, including the chance to find employment, giving them control, agency and destiny, potentially a better quality of life and comfort, and ability to access new social connections, cultural and recreational services and better mental health care. Feelings of stress and discomfort could be accompanied by a sense of openness towards the unknown, discovery and self-development. We learnt here from the youth advisors about the need to avoid a reductivist outlook on cities as neither inherently 'toxic exposures' nor straightforwardly positive. Instead urban experience is mediated by the specific and uneven opportunities available to diverse socio-economic groups.

The discussion groups helped us to articulate the importance of an integrated research framework which unpacks the relationship between young people and their urban environments, as well as the meaning of mental health as the outcome of having to deal with the world as the "reality we live with". Youth advisors were presented with the interim findings from the scoping review (phase 1) on the relative strengths and shortcomings of the evidence base on urban precarity and mental health. Together we identified priorities for future urban mental health research (Fig. 4) and developed a consensus statement (box 1) to summarise the position of the group on future research priorities. In the following subsections we use this framework and the two sensitising concepts of neuropolis and ontological security to analyse the review results, assess the assumptions and shortcomings of current urban youth mental health research and outline our interdisciplinary theoretical agenda to address these.

3.2. Urban conditions

Whilst urban mental health research has a long history (Wirth, 1938; Woolston, 1912), there has been an expansion of recent research which explores and evidences the impacts of contemporary rapid urbanisation on mental health. There is sometimes a tendency for researchers within their specialist areas to attempt to isolate out and categorise key urban factors as driving forces or risk factors for poor mental health. By contrast, the youth advisors regarded it as crucial that we focus on the interaction of factors (see Box 1). 'Risk' and 'exposure' to mental health stressors are the central focal points for urban mental health sciences, emphasising advances in understanding dose-response relationships and mechanistic biological pathways from urban exposure to brain activity and brain architecture (e.g., Costa e Silva and Steffen, 2019). A limitation of this rapidly growing field is that neither urbanicity nor mental health are homogenous categories. Different definitions of urbanicity are frequently used (e.g., population size, density, form of the built environment, place of upbringing). Studies could also be strengthened by adopting a social model of mental health to explain the experiences and emotional lives of diverse social groups within city environments. Furthermore, as our discussion with youth advisors highlighted, attention needs to be paid to understanding the multi-scalar contextual determinants of mental health including how social and physical features of urban environments interact. The 'distant' factors shaping urban

Box 1
Youth advisors consensus summary statement, Feb 2022

The IMH [Institute for Mental Health] Youth Advisory Group (YAG) met with members of the research team on four occasions throughout this study. Within meetings, we discussed our experiences of living in urban environments, our perceptions of how urban living affected our mental health and that of peers and provided feedback on the study's findings.

In our earliest meetings, we discussed our personal experiences of living in cities and identified aspects that we believed to negatively impact the mental health and wellbeing of young people. Factors that we identified included lack of adequate mental health support services, poor housing conditions, high crime rates and lack of green spaces. Through further discussion, we recognised that these factors were more prevalent in areas of high socioeconomic deprivation, and this was something that we put down to lack of balance in how funds are invested across areas by local authorities.

Although we identified individual factors that we believed to affect young people's mental health, we also recognised that there was a degree of interaction between these factors and felt that it was important that this was recognised. For example, access to green space is broadly seen to positively affect mental health but, if the green space is located area where people are reluctant to use it for other environment-related reasons (e.g. high crime rates in the area, poor transport or poor quality facilities) then we would expect that people living in that area would derive less benefit.

In our most recent meetings, we discussed aspects of urban living that we believed to positively affect young people's mental health and wellbeing. We felt that young people living within urban environments typically benefit from having more autonomy than those living in rural settings as a result of having more options available to them. Examples of "options" we identified included good access to public transport, living closer to services/facilities, and wider variety of employment opportunities.

Although none of our group had experience of living in rural settings, we collectively agreed that given the choice, we'd prefer to live in an urban environment than a rural one. We believe that there are pros and cons to living in either setting and that projects such as this are important to better understanding issues that exist within living environments.

We recommend that future work of this type be supported by a group of young people with a mix of living in urban and non-urban settings. Although we feel that our involvement added value to this project, we are conscious of the fact that our experiences are limited to urban living only and feel that it would have been beneficial to hear the views of young people that had alternative living experiences.

Members of the Institute for Mental Health Youth Advisory Group

mental health, such as demographic changes, type and speed of urbanisation, impacts of welfare policies, as well as trends in migration and geopolitical events, have to date been much less well accounted for than 'proximate' stressors in the urban mental health literature (Sampson et al., 2020). Questions of geographical scale in conceptualising the urban need to be addressed to advance our knowledge of the urban conditions which are attributed as 'risk factors'.

For example, poor environmental quality is framed by several papers as a core constituent of 'urban stress', including population density, noise from traffic and industry, poor sanitation, water and air quality (Salgado et al., 2020), limited access to nature and open spaces; built environment and urban sprawl (Taylor et al., 2016; Hoare et al., 2019; Baumann et al., 2020; Krabbendam et al., 2020), housing features and land-use mix (Gong et al., 2016). But the evidence to support many of these features of urban environments as causal explanations is equivocal (Min and Min, 2018; Moore et al., 2018; Van den Bosch and Sang, 2017). These environmental studies tend to focus on immediate physical environments. This often carriers over into studies of the organisation of social environments in which the ecology of the neighbourhood is often seen as an important unit of analysis. Neighbourhoods have been described by Berry (Berry, 2007: 222) as sites for "concentrated disadvantage", which encompasses sociodemographic disadvantage and physical and social "incivilities" (223, see also Taylor et al., 2016). Exposure to these incivilities is said to increase the risks of poor mental health by compromising the sense of security – a theme highlighted by our youth advisors as a key part of feeling in control (see section 3.1).

Frequently cited in the reviewed research as a driver of poor youth mental health and supported by the youth advisors as a primary concern is exposure to trauma, violence and conflict (Bordin et al., 2018; Cauce et al., 2003; Dolson, 2015; Dank et al., 2016; Marcal, 2017; Srivastava, 2009; Ventimiglia and Seedat, 2019; Wandersman and Nation, 1998). Likewise, youth advisors were concerned with how urban migration and displacement (Chen and Chen, 2015; Eckenwiler, 2018; Flanagan, 2015; Gruhl et al., 2012; Ludermir and Harpham, 1998; van den Bosch and Meyer-Lindenberg, 2019) and social inequalities such as gender, race and socioeconomic status (Chant et al., 2017; Christiani et al., 2015; Riva et al., 2011; Sethi et al., 1974; Quimby et al., 2018) impact mental health in urban areas. These are geopolitical forces which can have national and international causes, and as such benefit from sociological, political and anthropological research perspectives. Future research on the reproduction of social inequalities is crucial to understanding mental health impacts of marginalisation and discrimination. Particular groups have been identified as being at risk of exposure to violence and abuse or other forms of discrimination and harassment in urban settings. These include women (Srivastava, 2009), LGBTQ youth, people from racialised communities (Alicea et al., 2012), refugees (McWilliams and Bonet, 2016), and homeless children and young people (Chandra et al., 2018). Others discussed the slow violence of discrimination. Hatala et al.'s (2020) study of indigenous urban youth mental health in Canada shifts attention to long histories of settler colonialism, dispossession, oppression, and contemporary forms of racism; certain aspects of urban environments, like city parks or walking trails, are not always safe spaces for Indigenous young people. Here, intergenerational effects which take place over long timeframes can nonetheless be experienced in daily life, across the life course and during adolescence as a period of psychological development and identity formation. Similarly Doyle (2018) argued that racial inequalities and built structures of the urban environment are entangled, stating that effective and more 'humane' treatment of mental health requires radical action to address racially segregated living environments. These inequalities persist through the marginalising processes of urban gentrification.

In relation to urban precarity the three factors of housing, employment and governance are seen as important driving forces which operate at a more 'distant' spatial scale. Understanding the mental health impacts of economic fragility and uncertainty were also identified in the youth consultation as a research priority (see Fig. 4) Investigations by Fine et al. (2016: 511) focused at this larger scale of analysis, considering the double precarity of economic and social restructuring on the one hand, and state policies on the other. They posited this historical situation as the backdrop for growing up in poverty in the economically, racially and spatially divided context of the US. Housing precarity in particular is identified as having a deleterious impact on mental health (Baker et al., 2020; Cummins, 2020; Duff, 2016; Doyle, 2018; O'Brien et al., 2010; Ochola, 1996; Philo et al., 2019). Young people's relationships with place, tactics of home-making, avoidance and comfort seeking are all therefore of interest in research which links "the specific sense of precarity related to a troubled sense of self […] situated in, and related to, a material context" (Söderström, 2019: 82). These material conditions can compound the spatial concentration of disadvantage, such as gentrification in higher income countries (Alam, 2018; Bieler and Klausner, 2019), and slum settlements in lower income countries (Ochola, 1996). Employment is known to confer benefits on mental health and wellbeing, as a consequence of income, social relationships and a sense of meaning and purpose (Gruhl et al., 2012). Several researchers in sociology and anthropology have described how neoliberalism has brought with it fundamental changes to the labour market that include the stability and quality of employment, the deregulation of working conditions and increasingly distant working relationships (Kainer, 2016; Masseroni and Sauane, 2002; Robinson, 2019). They have argued that increased precarity of the labour market has had consequences for mental health, with the suggestion that this has been particularly marked for young people who now face uncertain employment futures (Robinson, 2019; Toivanen et al., 2020).

Although a variety of potential causes are outlined in the review, the consensus is that individual vulnerability to poor mental health is a result of the complex interaction of different factors, i.e. environmental, physical and social (Evans, 2003; Guan, 2017; Gong et al., 2016; Hoare et al., 2019; Krabbendam et al., 2020; Ludermir and Harpham, 1998; Mutumba et al., 2016). As such, and in response to the youth advisors' call for more integrating frameworks, it is important for future research to prioritise these interactions rather than separate them. Interdisciplinary dialogue is necessary to achieve this and the concept of neuropolis has been adopted by a number of articles reviewed in order to advance just such an approach. The idea of the neuropolis promotes a novel way to integrate social science and neuroscience research on urban mental health, to propose "urban life as a series of situational phenomena that people encounter and actively construct" (Krabbendam et al., 2020: 1105; Manning, 2019). This affords urban dwellers with a sense of political agency which is often missing from narratives of 'urban exposure', 'vulnerability' and 'risk', but which is keenly felt as a priority focus by the young people with whom we consulted. By applying the concept of neuropolis to the review process, we paid attention to the neglected urban governance dimensions of mental health. For example, Fu's (2018: 8) study of urban neighbourhoods in Guangzhou region of China took the approach of identifying the "spatial manifestation of power and politics of mental illness". This involved contextual consideration of meanings and history of community building, and urban governance specific to China – the ways that authorities seek to "maintain governable urban space" (Fu, 2018: 2). Chen and Chen (2015) described the Chinese discriminatory system of *Hukou* as creating inequalities in access to healthcare, and that urbanisation is a property of places rather than people. Meanwhile, Philo et al. (2019) described the ways in which mental distress is shaped by political issues of distribution.

Other studies were more focused on the politics of recognition; the expression of political subjectivity. Discussion of "psychiatrically underserved populations" in urban communities particularly homeless women, for instance has acknowledged the political stigma and denial of a group's very existence (Bachrach, 1992: 7). Eckenwiler (2018: 568) argues that a political praxis of recognition and solidarity can be instigated through conceptualising ourselves as "ecological subjects", for, considering ourselves as deeply relational beings "compels us, to forge

relations of solidarity and promote justice through ethical place-making with those who are vulnerable through their insecure relationship to place". Alam (2018) focused on how climate change and urban development has neglected the cultural needs and sense of belonging for young people in Indonesia. These approaches highlight the political dimensions of urban space – its expansive planetary significance and its intensive emotional and relational dynamics. These considerations are often neglected in studies which define urbanicity as the built environment, neighbourhoods or in terms of population density. The impacts of the brain situated in its ecology can be theorised through the lens of neuropolis. For Fitzgerald et al. (2016), this term heralds a novel form of embodiment which is informed by an ecological politics in order to recouple the body with its environment. It resists on the one hand the abstractions of lab-based neuroscientific research which isolates brains from environments, and on the other sociological theories which tend to ignore the biological impacts of social processes. In doing so, the authors argue that their account of neuropolis is intended "to render the intuition that urban living marks us in body and soul more concretely – using it to parse questions of anxiety, fragility and stress as they become legible in the urban brain" (p 233). Their intention is that this concept should directly address the politics of urban mental health by enabling citizens to "demand recognition" and by providing "strategies for intervening in spaces both inside and outside the skull" (Fitzgerald et al., 2016: 234).

An example where this has been taken forward is by interdisciplinary teams who have begun to more fully integrate social, environmental and biological processes in experimental studies of people moving through urban environments. For example, a new study by geographers, computer scientists and psychiatrists (Winz et al., 2022) found that young people diagnosed with first episode or at risk of psychosis exhibited higher attention and sensitivity towards the urban environment than a control group, as measured by skin conductance. Such interdisciplinary collaborations could help urban health initiatives such as *WHO Healthy Cities* or *Thrive in the City* to focus on specific aspects of the urban environment which most negatively impact mental health. These insights are informed by research with people with lived experiences of psychosis symptoms using mobile biosensing methods and walking interviews. Recommendations arising from this team include a number of "urban remediation" strategies to support people to cope within urban milieus (Baumann et al., 2020; see section 3.4). One of the benefits of their application of the neuropolis concept is the development of policy recommendations at the scale of the city as well as supports for people to increase their sense of agency and capability to navigate the urban environment.

3.3. Processes

Our second objective was to explore what the literature proposed as existing *processes* linking urban conditions and mental health, in order to extrapolate how reducing urban precarity might prevent and ameliorate poor mental health among young people. We prefer this term to 'pathways' or 'mechanisms' as it connotes the multi-faceted nature of human-environment relations and mind-body-environment interactions. These overlap, are multi-scalar and historically contextualised, and have multi-directional impacts. Building on phenomenological approaches and informed by the youth advisor's accounts of their relationships with the city as an experiential environment, the concept of ontological insecurity enables researchers to consider how relationships with place and with others play an important role in shaping experience. It is a useful counter-point to a tendency within biological psychiatry, neuroscientific and epidemiological approaches to urban mental health to downplay the role and complexity of feelings - feelings are rarely mentioned within the articles from these disciplines - including how these are socially produced and behaviourally mediated. This shifts attention away from a sense of determinism conveyed by studies on "exposure" to the urban as a risk factor in mental health, and towards a more agentic sense of self, in which people play an active role in world- and place-making. This is necessary because the quality of evidence on biological pathways of urban exposure and mental ill-health remains low to moderate (van den Bosh and Meyer-Lindenberg, 2019: 248), and because even despite significant advances in the urban mental health field, people's mental health is not improving (Patton et al., 2021). Interdisciplinary approaches have the potential to support the production of knowledge and evidence on urban mental health across different geographical scales and units of analysis. They can take into account both biological processes and people's non-determined agency to actively make spaces and environments differently.

The literature reviewed proposed a number environmental, biological, socio-economic, psycho-social or developmental processes by which urban conditions were said to shape mental health. The evidence underpinning these various processes includes experimental evidence on urban physical environments on brain structure, functioning, stress response and emotional processing (Lederbogen et al., 2011; van den Bosch and Meyer-Lindenberg, 2019); immunological hypotheses, e.g., the 'old friends' theory which holds that as urban dwellers have less exposure to animals and micro-organisms than rural dwellers, their immunoregulation is relatively impaired and this increases their vulnerability to poor mental health (Stamper et al., 2016); and the effects of early childhood exposure to violence on cortisol response to stress (Peckins et al., 2020). In terms of socio-economic processes, the impacts of rural to urban migration (Ludermir and Harpham, 1998), insecure employment (Gruhl et al., 2012; Cummins, 2020), the unequal distribution of welfare resources (Quinton, 1988), and the specific pressures placed on young people to mould themselves to ever-changing market demands (Flanagan, 2015) are seen as processes by which precarity impacts mental health. Riva et al. (2011) and Quimby et al. (2018) pointed out that poorer individuals living in wealthy areas who may not be able to afford goods or to participate fully in community life could experience the 'unhealthy' effects of comparing themselves to their neighbours. Other authors have highlighted the intersections of inequality with gendered or racialised identities (e.g., Chant et al., 2017; Fine et al., 2018; Smokowski et al., 2004). Taken together, an interdisciplinary account of both the biological and sociological pathways to poor mental health is needed in order to enhance understanding of the biological mechanisms of hitherto neglected variables such as marginalisation, security, stability, politics and governance (Chant et al., 2017).

Psychosocial forms of explanation offer one model of integration. These combine the psychological and social dimensions of mental health through an attention to the meanings of place, sense of self-efficacy, power relations and (unequal) social relationships. Söderström (2019: 82) has described "the city-psychosis nexus", to provide an analysis of precarity as a person's embodied and affective encounters with the city. Others have focused on how conditions in the external world become internalised in the psychological states of individuals (Philo et al., 2019). Mason and Mennis (2018: 2033) highlighted how people's attachment to place (defined as "conscious or unconscious enduring bonds to place"), interacts with physical and social domains, increasing psychosocial meaning of particular places. They argue that this provides a basis for security, loyalty, self-disclosure, friendship building, and identity development, but also risk behaviours related to mental health. Without this place attachment, and in the context of urban stressors, a decline in self-efficacy and increased sense of powerlessness. Impacts on individuals' mental health, access to support, collective efficacy and social cohesion has been observed (Anakwenze and Zuberi, 2013). Such dimensions are strongly related to social identity and the politics of recognition, whereby certain social groups are imbued with social and cultural capital, and others marginalised and mis-recognised, typically on the basis of ethnicity, gender or disability (e.g., Scorgie et al., 2017). These social relations are reflected in the urban landscape and urban governance. For instance, Fine et al. (2018) argued that misrecognition occurs across micro, meso and macro-levels, leading to state and police violence, housing insecurity, family betrayal, educational

marginalisation and abuse. Understanding the intersection of social relations, identity and lived experience of diverse social groups is therefore key to understanding youth urban mental health.

The reviewed literature also explored how urban environmental factors impact on the development of young people, including how the means by which they develop a sense of home can influence self-esteem and the transition to adulthood (Hirsch et al., 2000). Threats to these processes included limited support from youth workers, low family regard for academic success (Hirsch et al., 2000), insecure and transient housing, evictions, loss of income, social support, separation from parents (Ochola, 1996). Young people are constantly having to navigate the social (dis)organisation of urban environment, in relation to employment and education, criminal activity and gang involvement, and this can lead to forms of exclusion which impact their mental health (Fast and BukusiMoyer, 2020; Flanagan, 2015; Schwan et al., 2018). Several authors spanning the past 30 years of research (Quinton, 1988; Evans, 2003; Gong et al., 2016; Gruebner et al., 2017; Krabbendam et al., 2020; Sousa et al., 2014; Ventimiglia and Seedat, 2019) have noted a need for more longitudinal studies which account for differences in current city living and urban upbringing, shed light on duration of exposure to urban environmental factors, improve understanding of developmental effects, and identify biographical and life events details which shape how people respond to their urban circumstances. This diversity of experience was highlighted in our consultation as a key research gap to address. Focusing on more immediate temporalities, Gong et al. (2016) identified a gap in understanding how space and time relate to mental health, in terms of how people occupy urban spaces at different daily times, where people spend time, and how urbanicity and identity change over time.

In the discussion with youth advisors, some described their experiences of comfort or discomfort within the urban system in existential terms. This chimes with a number of the reviewed publications which use ontological insecurity in their analytic approaches. Bird's (Bird, 2019: 4) ethnographic research on creative labour conceptualised precarity as a part of the experience of being, from which people "create toolkits for well-being". Bird (Bird, 2019: 8) argued that "everyday bodily and material practices are core to the stability of the home" while a study of women's wellbeing in Palestine highlighted the spatio-temporal importance of "constancy of the family home" as a key feature of women's ontological security (Sousa et al., 2014: 205). A study of youth homelessness in Canadian cities advanced a more existential definition of precarity as *precariousness,* which refers to a "constantly emergent state of being uncertain in an ambiguous and sometimes volatile social and shared world" (Dolson, 2015: 137). Ontological insecurity is useful here in providing explanations for how instability in daily life can lead to existential (psychic, bodily and moral) suffering. Philo et al. (2019: 151) developed a spatial account of ontological insecurity, referring to precariousness to denote "something geographical about not being securely 'placed' in the world". The psychological harms produced by the demand for young people to constantly reimagine their sense of self in a new economy has been identified by Flanagan et al. (2015: 71). They drew on the work of Erik Erikson, who "warned that anxiety, self-doubt, and vigilance— toward others and the world—would be psychological costs of living with uncertainty."

3.4. Protective factors

The youth advisors regarded access to treatments, guidance on creating fairer cities and interventions in community spaces for solidarity and support as key research priorities. Our third objective was therefore to organise evidence on protective factors and ideas for intervention. We reviewed studies from diverse international contexts interventions and prevention policies which have been proposed or trialled as governmental responses to addressing urban precarity and improving outcomes for young people experiencing mental distress. We summarised the protective factors identified in each paper within the sample under 25 thematic headings (Fig. 5). Understanding the frequency of these themes provided us with an overview of the extent to which the themes identified had been considered in this literature.

Of these, the two most often cited themes related to: the importance of family, friends, societies or activities which led to increased connection to place, increased social capital, and increased feeling of social cohesion; and the need for green space, good urban design and walkability. This suggests that urban conditions associated with built environment, social environments, youth development and social capital are providing the main bases for intervention, while environmental and biological processes are currently less well represented in urban mental health research. The idea of social connectedness that reduces isolation, and urban design that increases liveability being integral to wellbeing was identifiable across the international literature. However, a series of multi-sectoral other factors also featured as protective in relation to urban precarity and included integration into/access to the mental health system; socio-economic stability; stable housing, specific mental and public health promotion work (including anti-stigma work); the presence of community level interventions or NGO's; meaningful secure employment; and initiatives addressing intersectional identities.

These protective factors operate at the macro (societal), meso (community), and micro (individual) levels, and it would be useful in future research to distinguish between which factors work best across diverse global cultural contexts. There were also particular ways in which these were realised, which included: school based interventions, targeted youth work; providing the opportunity for civic engagement; visible role models and mentoring; support for new migrants or those experiencing legal precarity in relation to immigration; early intervention; and through access to services, activities, and healthcare. Several factors were also associated with psychosocial processes in the reviewed literature. These include meaningful work (Gruhl et al., 2012) which "binds people to reality" Ludermir and Harpham (1998: 230), whether paid or unpaid, e.g., home-making (Gutiérrez-García et al., 2018). Fine et al. (2018) found that social activism was an important part of securing a sense of identity and solidarity among queer youth in the US. Eckenwiler (2018: 566) similarly argued that preventative action for urban renewal and health equity should be focused on solidarity and recognition, through improving the health of those who are ecologically vulnerable; "displaced and/or insecurely placed".

Coping strategies identified for young people in urban environments based on this experiential account included developing a sense of identity and belonging through developing enduring bonds to places (place attachment) (Mason and Mennis, 2018: 2033), "restorative niches" or places to be one's "true self", supportive of emotional regulation (Roe and Roe, 2019: 192) and "niching tactics" (Bieler and Klausner, 2019:203) to develop specific capacities to navigate urban risk and stressors, such as "taming", "arranging", "drifting along", or "avoiding the urban". Research by Baumann et al. (2020) similarly focusses on tactics and strategies to support people to cope with the urban milieu in their everyday life. These include adapting housing and creating a sense of home, journey planning, increasing contact with restorative places, tactics to create "sensory bubbles of isolation" and "atmospheres of comfort", treatment of paranoid ideation, walking therapies, improving cognitive resources, and taking part in enjoyable group activities in the city (Baumann et al., 2020: 277–279). Other studies highlighted interventions which could support self-esteem and self-consistency, such as creative drawing (Dolson, 2015), social and emotional learning programmes (Levac et al., 2010), self-esteem workshops (Dank et al., 2016), cultural and environmental interventions to influence belonging, address historically specific forms of ethnic marginalisation (Hatala et al., 2020), and therapeutic animal cafes to provide young people with a place of healing, comfort and skills for socialisation (Robinson, 2019).

Investing in social capital and reducing social inequalities are highlighted as ways to intervene in urban mental health. Social capital has been offered as an explanation for the difference in mental health

Summary themes	Totals
Family/friends/societies or activities = connection to place (social capital + social cohesion)	31
Green space, urban design and walkability (green space linked)	20
Integration into/access to mental health system	17
Socioeconomic stability (food, water, shelter, health access, poverty)	16
Stable housing/tacking homelessness	15
Mental Health/Public Health promotion (including stigma)	14
Presence of NGOs &/or community level interventions	13
Improve neighbourhood safety = increase feelings of security	11
Meaningful/secure employment	11
Initiatives addressing intersectionality	11
School based interventions	10
Targeted work with youth	8
Opportunity for civic engagement	8
Visible role models and mentoring	7
Support for new migrants/with legal precarity (immigration)	7
Early intervention	6
Activities (e.g. arts, play, exercise, animal cafes)	6
Access to healthcare (general)	4
Strength/asset based social/youth work	3
Access to education	3
Supportive religious communities	2
Targeted work with women and children	2
Targeted work with young men	2
Paraprofessional involvement	1
Natural disaster prevention	1

Fig. 5. Protective factors to inform prevention policies.

outcomes between neighbourhoods (Caracci, 2008; Riva et al., 2011; Krabbendam et al., 2020; Lauwers et al., 2020). Others have related this to a lack of social cohesion, social connectedness and social support (Hoare et al., 2019; Phillips et al., 2018; Ventimiglia and Seedat, 2019). McKenzie et al. (2002) have summarised the four main aspects of social capital: collective efficacy, social trust/reciprocity, participation in voluntary organisations and social integration for mutual benefit (Lochner et al., 1999). Elsewhere, McKenzie (2008) explained that urbanisation negatively impacts social capital through undermining social networks, social support and cognitive social capital, including shared values. Addressing the consequence of urban competitiveness and rapid population growth limiting for civic identities is seen as a potential solution here.

4. Discussion

4.1. Interdisciplinary innovations

There have been increasing calls for advancing interdisciplinary research on urban precarity and mental health, including the psychological, social and environmental sciences, and legal, planning and architectural disciplines (Baumann et al., 2020; Gruebner et al., 2017; Yotebieng et al., 2019). In particular, new research methods such as mobile psychophysiology, walking interviews and measurement of biomarkers have been seen as potentially fruitful (Alderton et al., 2019; Krabbendam et al., 2020; Söderström, 2019; Winz and Söderström, 2021). Emerging research on immunocapacity, the microbiome and relative lack of biodiversity in urban environments provides one avenue of enquiry (Hoare et al., 2019; van den Bosch and Meyer-Lindenberg,

2019; van den Bosch and Ode Sang, 2017; Ventimiglia and Seedat, 2019). Yet the fundamental principles of human-environmental interaction are far from being fully articulated and there remain key distinctions between scientific and interpretive paradigms in this regard. Interdisciplinary research programmes which combine a focus on personal and social experience with insights into biological pathways to mental (ill)health should therefore seek to combine analysis of urban environmental infrastructures and local social infrastructures (Alderton et al., 2019; MacGregor, 2018). There also remains significant groundwork and dialogue in order to ensure that causal explanations are sufficiently layered to take into account historical circumstances and processes operative at different geographical scales (Hatala et al., 2020; Lowe and DeVerteuil, 2020; McKenzie, 2008), as well as scientific and technological developments (Hoare et al., 2019).

Such interdisciplinarity is of course not without its problems or critics. Pitts-Taylor (2019: 661) for instance argues that the use of neuroscientific knowledge and assumptions about cognitive deficits and emotional/behavioural management associated with the 'neural phenotype' of people living in poverty is fraught with conceptual missteps, including singling out poor and minoritized young people for social intervention. Interdisciplinarity can sometimes be seen as an instrumentalist, state-directed device for producing economically valuable knowledge, reproductive of knowledge hierarchies involving rather too much compromise – seen for instance in the narrow use of social scientists within natural or physical science-led studies or their relegation to post-hoc consideration of the Ethical, Legal and Social Implications (ELSI) of specific studies or fields of enquiry. However, interdisciplinarity is also seen as an essential means for "understanding the tangled relations between the neural and the social – not least [for] those whose research is developed to understanding and intervening upon mental ill health and mental disorders" (Callard and Fitzgerald, 2015: 47). There is a sense that collaboration can bring laboratory studies into the 'real world' (e.g., urban environments) at the same time as addressing the blindspots of sociological enquiry in terms of its accounts of biological evidence and materiality, and its willingness to countenance the conceptual reductionism often necessary in neuroscientific investigation and data analysis. As Barry and Born (2013) also attest, interdisciplinary working can also be a site of invention and change which is well-equipped to address the needs and concerns of research users (though the notion of 'users' can be contested and co-opted) – in this case to improve mental health and reduce mental health inequalities in cities.

The opening up of disciplinary perspectives to transform knowledge relating to urban mental health is described in Söderström's (2019:81) reflections on being part of an interdisciplinary team studying how urban precarity is experienced by people with experience of psychosis. Here he advises that researchers adapt their orientations at two key moments in the research process. First at the point of conceptualising the research problem, it is necessary to "'stay with the trouble' of epistemological difference" rather than seek to resolve differences and compromise. Second, there is a need to allow these different conceptual tensions productively at the moment of co-experimentation to "contaminate" each other to produce richer descriptions, categorisations and forms of analysis – essential for research outside of laboratory contexts (Söderström, 2019: 87). It is therefore significant that there were relatively few proposals in the reviewed literature for innovations in urban mental health interventions. There were some notable exceptions such as therapeutic animal cafés, which have the potential co-benefit of addressing the "old friends" hypothesis (Robinson, 2019), creative drawing (Dolson, 2015), building design (Ventimiglia and Seedat, 2019), "urban remediation" strategies (Baumann et al., 2020), and collaborative community and governmental action to shape for more disaster resilient cities in the face of the mental health impacts of the climate emergency (Alam, 2018). Overall, however, improved knowledge of the impact of urban environments on mental health has not yet led to increased availability of treatment and services (Hoare et al., 2019: 201). There is value in working across disciplines to position the urban as a multi-scalar environment in which biological, environmental and social processes intersect at a particular timepoint, appreciating the present as well as histories and futures. This can be an important way to develop more imaginative ways to re-shape the urban circumstances which lead to problems with living. This interdisciplinarity could usefully be extended, as Barry and Born (2013) recommend, to more publicly engaged research. Few papers (excepting Harpham, 1994; Hartmann et al., 2018) called for collaborative or co-produced research on urban precarity, suggesting that the field would benefit from further involvement of service users and specific vulnerable groups to shape transformative changes in urban mental health promotion, adaptation and intervention.

4.2. Towards place-based mental health strategies

Much theoretical work in developing clear hypotheses of the mechanistic links between urban precarity and poor mental health is still required (Toivanen et al., 2020) and a number of potentially fruitful research avenues can be identified. Initially, more holistic conceptions of the relationship between 'place' and mental health are needed (van den Bosch and Ode Sang, 2017). It is also necessary to develop a robust account of the formation of the 'self', youth transitions, and engagement with youth perceptions of 'urban futures' and their own future opportunities in specific contexts (Gutiérrez-García et al., 2017; Hirsch et al., 2000;Roe and Roe, 2019). As the review has highlighted, the organisation of social environments, experiences of mental health in particular neighbourhoods and quality of people's lives can be shaped as much by neurobiological and environmental processes as by unobservable social and political drivers and the arrangements of urban governance. These shape how public and private sector services operate, and manifest in urban and neighbourhood inequalities. One important future avenue of enquiry then is to examine the impact of weak governance on youth urban mental health and to work towards developing and evaluating governance models for urban mental health such as the Mental Health Friendly Cities framework (Sinha et al., 2021) or ThriveNYC (Belkin and McCray, 2019).

It is noted that there should be more specific studies which focus on a diverse range of mental health conditions and marginalised social groups (Aberdein and Zimmerman, 2015; Alemi et al., 2016; Davidson et al., 2018; Hoare et al., 2019; Marcal, 2017; Mutumba et al., 2016). These could usefully question the spatio-temporal dynamics of 'exposure' to urban environments and address the distinctive characteristics of young people as individuals and as a heterogenous social group (Hatala et al., 2020). For example, Alderton et al. (2019: 17) have argued for a research focus on "identifying the key neighbourhood features that 'level up' (i.e., bestow the largest mental health benefit to the most disadvantaged children to narrow inequities)". Here the built environment is seen as a potential resource whereby differential access to these resources can exacerbate mental health inequalities. Studies from a more diverse range of international contexts also remain lacking, and authors have argued for more attention to be paid to specific contexts such as low and middle income countries and areas of political conflict (Caracci, 2008; Crossley et al., 2019; Lecic-Tosevski, 2019; McKenzie, 2008; Okkels et al., 2018; Sousa et al., 2014). The complexity of explaining multiple and interacting risk factors across a range of geographical scales is a core issue which should be addressed in future research, and many have argued that longitudinal and multi-level studies could support this task (Gong et al., 2016; Gruebner et al., 2017; Krabbendam et al., 2020; Peters et al., 2015; Riva et al., 2011; Sousa et al., 2014; Ventimiglia and Seedat, 2019).

5. Conclusion

This paper has reviewed the interdisciplinary evidence on urban precarity and youth mental health, finding a rich field and identifying

some potential areas of weakness and key gaps. We find a renewed interest within medical, psychological and psychiatric literature on urban mental health, and an extensive body of social scientific research which explores the dynamic interplay of spatial, temporal and embodied factors connecting precarious urban living conditions and the emotional experiences of young people. We have explored some of the assumptions of these literatures, including how the urban is defined, a predominant focus on the proximate rather than distal processes at play, and a tendency to highlight the urban environment in terms of exposure and risk. We have argued that separating out urban factors such as socio-economic inequalities, biological pathways of urban stress, urban form, urban density, neighbourhood deprivation, migration, poor environmental quality and so on into core components and mechanistic pathways can have the effect of neglecting the complex interactions between urban factors which can shape mental health. What is particularly overlooked by a components approach are the ways in which urban processes operate across a wide range of domains (environmental, cultural, political, social, economic, biological) as well as across different scales (relating to planetary ecology, geopolitical events as well as people's individual biographies, perceptions and diverse experiences). As our youth advisors also noted, their experiences of urban environments are also inherently mediated – their expectations and realties are shaped by urban imagery as much as by urban materiality. These elements are not well captured by research which is exclusively biological or sociological in its prevailing epistemology or methodology.

If young people are to play an active role in advancing interdisciplinary understandings of urban mental health, then further analysis of the role of culture, emotional selfhood, social conflicts and economic conditions is necessary. The concepts of neuropolis and ontological security provide some reflexive tools for which to continue this area of research. Co-produced research with young people is an important part of this reflexive form of enquiry which emphasises experience, agency and authentic need to address health inequalities. We offer a framework for engaging young people in this endeavour, and this can provide a powerful source of testimony to influence policy and change. Significant political will to reshape the urban imaginary as a public sphere for promoting good mental health and addressing mental health inequalities will be required. Acknowledging the potential of young people as part of wider intergenerational communities to be active meaning-makers and to engage in collective action to address their own mental health challenges or that of others is a crucial step for urban mental health research. Youth advisors identified some key priorities for future research including investigations of economic fragility, access to treatment, community spaces and interaction of social factors shaping mental health. Equally it is important not to be naïve about the capacity for young people to instigate structural changes needed to tackle urban precarity, nor to place the burden of responsibility on those most affected by it.

Yet it must also be recognised that there is a distinct shortage of ideas, services and actions to improve urban mental health for young people. Experts frequently propose very specific solutions at a local level, or very general propositions for global guidelines – for instance relating to urban planning, parenting programmes, social and emotional learning, self-esteem training, or preventing homelessness. Missing from these proposals is an attention to the detailed flows of power, existing contexts of discrimination and intersectional identities, or the detail of how interventions can be made to work at the meso-level and across globally and historically diverse circumstances. We argue for a more reflexive sociological and environmental perspective on urban mental health rather than the sometimes individualist approaches evident in this field. This interdisciplinarity will advance understanding of the existential 'problems of living' within specific urban conditions (Bachrach, 1992: 7). Physical and social factors shape human inhabitation of urban areas across different spatial scales, from the microbial such as through the gut-brain axis, (Cowan et al., 2020), to the experiential – such as how we experience moving through urban areas (Söderström, 2019) – and the atmospheric, for example how air pollution impacts neurological processes (Shehab and Pope, 2019). The concepts of neuropolis and ontological insecurity could thus provide grounds for novel interdisciplinary research activity that can help to develop initiatives that enhance young people's feelings of control, comfort, their capacity to deal with conflict and help them to navigate the choices posed by city living. Moreover, the concepts give attention to the political nature of urban mental health, the importance of a politics of recognition and our ecological relations to others. Centring these aspects in future interdisciplinary research may open up modes of enquiry into new ways of living well in the city.

Data availability

No new primary data was used for the research described in the article. The articles reviewed are summarised in Supplementary Material 3

Acknowledgements

We would like to thank Anne-Kathrin Fett for incisive and helpful comments on an earlier draft of this article, and Charlotte Saunders, co-lead of the Institute of Mental Health Youth Advisory Group.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2022.115619.

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