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Tackling the Complexities of the Obesity Pandemic Among the BAME Population in the UK Through Identification of the Social Determinants of Mental Health and Wellbeing: A Narrative Review

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Tackling the Complexities of the Obesity Pandemic Among the BAME Population in the UK Through Identification of the Social Determinants of Mental Health and Wellbeing: A Narrative Review

Abstract

Obesity's multifaceted causes give rise to a complex and diverse range of health associated morbidities and comorbidities, including diabetes, hypertension, and cardiovascular disease, particularly among British Asian and Minority Ethnic (BAME) populations within in the UK. As found within the recent COVID-19 pandemic these can have wider reaching implications including increased risk of mortality within this population group. Understanding the potential social determinants of the causes of obesity is essential if effective strategies are to be developed to tackle this. A comprehensive search of the CINAHL, ASSIA and Web of Science databases was undertaken with 148 papers identified. Through application of inclusion and exclusion criteria two papers were included within this review. Inductive content analysis was undertaken, through which four conceptual categories were identified: impact of social culture, the "limitless" consequences of empowerment, the power of knowledge, and external elements. Social determinants such as culture, perception, family, and mental health have been found to impact significantly on the ability of many individuals within the BAME population to effectively engage with obesity and weight loss strategies. A greater understanding of these social determinants is needed if future strategies aimed at addressing the obesity pandemic within this population is to be effective.

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Introduction

The classification of obesity remains an ongoing subject of debate in clinical and social science research due to its multifactorial causes, including physical, psychological, and genetic (Capodaglio and Liuzzi, 2013; Rosen, 2014; World Health Organisation [WHO], 2022). An understanding of this together with potential social determinants such as mental health and wellbeing are important given the associated risk factors of obesity, including diabetes, hypertension, and cardiovascular disease (Shevchenko et al., 2015; Brown et al., 2019;Timmis et al., 2020), particularly among British Asian and Minority Ethic (BAME) populations (Abbott et al, 2020; Ansari et al, 2020), identifying as Caribbean, African, Pakistani, Indian, South Asian or Bangladeshi, living in the UK.

Epidemiology of obesity

Globally, the WHO (2016) reported 1.9 billion people as obese, this being defined as "abnormal or excessive fat accumulation that presents a risk to health" (WHO, 2022). Obesity has claimed over 4.7 million individuals in 2019 (Dai et al., 2020), and is predicted to be responsible for 3.8% of disability life-adjusted life-years, and 3.9% of lost years of life worldwide (Fleming et al., 2014), figures that have more than doubled since 1975 (Ansari et al., 2020). Considering the increased economic and health pressures placed on health care systems globally, awareness campaigns highlighting the risks associated with obesity have been developed over many decades. However, these have met with little success, as evidenced in the USA where 55% of the population are defined as morbidly obese (Centres for Disease Control and Prevention, 2021) and in the UK where 28.7% of adults and 35% of children are now described as obese (GOV.UK, 2021). The disparities of this frequency must be noted within ethnic groups with the England, UK where adults from black and white ethnic groups have a higher prevalence (GOV.UK, 2022), and where the uptake of interventions such as dietary advice, physical activity and behavioural changes aimed at reducing obesity remains low within BAME adults.

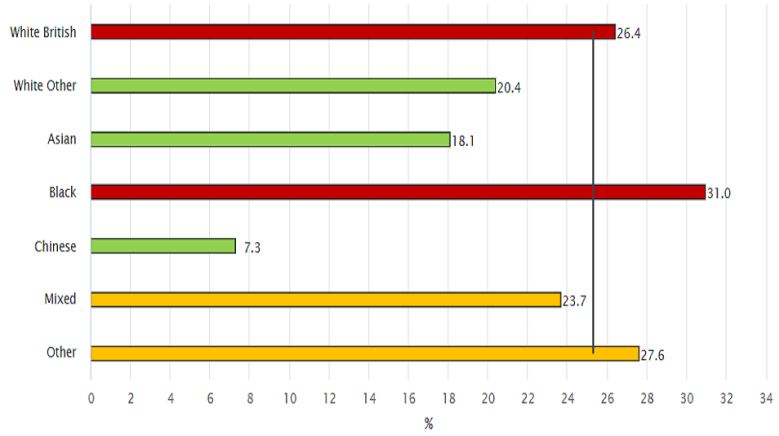

Figure 1. Percentage of adults (aged 18+ years) classified as obese by ethnic group, England, 2020-21 (GOV.UK, 2022)

Aetiology of obesity

The interaction between genetic and environmental factors associated with obesity are complex and have been the subject of much debate for many years. Increased global sedentary lifestyles and working patterns enhanced through IT based technologies, social media, and readily available fast-food outlets (Ansari et al., 2020), combined with limited exercise space are identified as environmental factors contributing to the rise in obesity (Park et al., 2020). This is particularly evident in the those with a lower socioeconomic status (Tyrell et al, 2016). Strategies aimed solely at such environmental factors are unlikely to succeed due to additional complex hormonal, metabolic and neurochemical adaptations within the body which both promote weight gain and fight against weight loss (Blüher, 2019; Jackson et al, 2020). A further compounding factor is the impact of mental health on the ability to engage effectively with any weight loss strategy (Weinberger et al, 2016; Payne et al., 2018) such as physical activities. Given the multifaceted complexity of the issue, a more tailored approach to addressing the 'obesity pandemic' (Jackson et al, 2020) is required to ensure its uptake and efficacy particularly among the BAME population within the UK. This is of importance given the disproportionate impact of COVID-19 on the obese and BAME population, which saw increased hospitalisation (over 30%), use of intensive care and mechanical ventilation in comparison to Caucasians counterparts (Townsend et al, 2020; ICNARC, 2020). Whilst not unique to the UK with countries such as the USA (Moorthy and Sankar, 2020) also recording similar data, the focus for this research with be the BAME population with obesity.

Obesity, COVID-19 and BAME

Whilst the exact causal factors for the disparity in morbidity and mortality outcomes through COVID-19 for BAME populations and Caucasians within the UK are not yet known, the link between ethnicity, obesity and vulnerability to COVID-19 has been established. Sociodemographic factors such as household crowding and density of residence may also be contributing factors, whereby overcrowding was recorded in 30% Bangladeshi, and 16% Pakistani households (GOV.UK, 2020). This combined with uncertainty regarding the vaccine, medical mistrust and misgivings towards the government, politicisation of the vaccination programme, and

the health service has resulted in increased vaccine hesitancy among the BAME population (Hussain et al, 2022), potentially exacerbating the previously identified disparate impact of COVID-19 on this population within the UK (Moorthy and Sankar, 2020).

Mental Health, Obesity, and BAME

Obesity and its links with mental health are multifaceted, being associated with body dissatisfaction, low self-esteem, and anxiety (Payne et al., 2018; Weinberger et al.,2016), in combination with stigmatisation, prejudice and social exclusion (National Institute for Clinical Excellence (NICE, 2017). Within the UK, groups within the BAME population demonstrate higher levels of depression (Pinto, Ashworth, and Jones, 2008), type 2 diabetes (Diabetes UK), heart attacks and hypertension (George et al., 2017). Bhugra et al, (2020) than the general population. These factors combined with lower levels of physical activity are potential contributors to higher rates of COVID-19 mortality. Given this, there is a need to identify an approach to addressing the diverse needs of the BAME population that acknowledges and works with their respective requirements. Bhugra et al., (2021) found that whilst studies were undertaken within this population in respect of COVID-19, co-morbidities, and mental health their efficacy are yet to be established. A key factor in this is the lack of tailored inventions designed to meet specific needs, rather than broad ranging information-based interventions (Coupe, Cotterill, and Peters, 2018). For the studies to have meaning their findings must be weighed against the fact that this population were proportionately more likely to have been working on the frontline, be this health, social care, and transport, which would potentially increase the impact upon mental health.

Rationale

COVID-19 has highlighted the disparities between the BAME population and their Caucasian counterparts within the UK (Moorthy and Sankar, 2020; Bhugra et al., 2021). For the issues created by such disparities, including low socio-economic status (GOV.UK, 2020) and health inequality (Hussain et al., 2022), to be effectively addressed there is a need to review all current research in this sector. This enables a synthesis of the social determinants of mental health and wellbeing among BAME in the UK enabling identification of those primary factors, recognising that these may be different within the different populations comprising BAME within the UK (Coupe, Cotterill, and Peters, 2018).

Aims and Objectives

The primary aim of this research is to identify the social determinants of mental health and wellbeing among BAME in the UK.

Methodology

This narrative review focused on the social determinants of mental health and wellbeing among BAME in the UK.

Search Strategy

A systematic search of five databases; CINAHL, ASSIA, Web of Science, Science Direct and Psych INFO was completed by the researcher and academic librarian (JM and DW) using keywords and synonyms (see Appendix 1 and Table 1). The searches within these databases

were restricted to English language and primary peer-reviewed studies relevant to review question “social determinants of mental health and wellbeing amongst obese BAME adults in the UK” using relevant medical subject headings (MeSH) terms and synonyms. These terms and synonyms were combined using Boolean operators (“AND” and “OR”) and truncation (*) to ensure that the database search is balanced, sensitive, and precise (Bramer et al.,2018).

Table 1. Database search terms with application of Boolean operators

Title term (subject area)	**Key Search Terms**
Social determinants of health	(Social determinants of health) AND "Quality of life")
Mental health	("Mental health") OR ("Quality of life") OR ("Psychological wellbeing") OR mental health OR mental illness OR mental disorder OR psychiatric illness OR wellbeing OR well-being OR wellbeing OR quality of life OR wellness OR positive affect OR mental health)
Obesity	("Obesity") OR obesity OR overweight OR fat OR obese OR unhealthy weight OR high BMI)
BAME or Ethnic Minorities or Minority groups	("Ethnic minorities") OR ("Minority groups") OR ("Asian people") OR ("Black people") OR ethnic minorities OR ethnic minority OR racial minorities OR ethnic group)
United Kingdom	United Kingdom UK" OR "England" OR "Scotland" OR "Northern Ireland" OR "Wales"

Inclusion/Exclusion criteria

Peer-reviewed qualitative studies where the primary focus was on BAME populations within the UK were included. Studies that did not fulfil the inclusion criteria were not considered, with the reasons for this provided (see **Table 2**). Only studies published between 2012-2022 were included to ensure currency of data collected.

Table 2: Inclusion and exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Peer-reviewed qualitative studies	Studies conducted only on non-adult or non-BAME populations
Studies written in English	
Studies involving only adult BAME populations in the UK	
Lifestyle factors, mental health and/or wellbeing	
Papers published between 2012 to Present	

Study Selection

The titles and abstracts of the articles were screened and evaluated based on the eligibility criteria to determine relevance, with the full texts of the papers that passed the first screening evaluated based on the same criteria. The two-stage selection process was carried out by JM, FM who reviewed the selections independently thereby enhancing reliability and validity. Sifting was done by two researchers (JM, FM) and there was no disagreement, but should there have been a disagreement a third researcher (LAN) would have been involved.

Quality Assessment of Included Literature

Two eligible studies were obtained by two authors (JM, FM) and were independently assessed to reduce the risk of bias. The Critical Appraisal Skills Programme (CASP) checklist was used to assess the quality for this (Long, French and Brooks, 2020). There were no disagreements between reviewers, but should there have been any this would have been resolved through consultation and discussion with a third independent reviewer (LAN).

Data Synthesis

The reviewers critically appraised each of the selected studies, in terms of how well they met the stipulated criteria. Upon satisfaction of this, the data was extracted, and analysed using Inductive Content Analysis as outlined by Elo and Kyngas, (2008). In the reporting of research selection procedures, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram was used, see **Figure 2.**

Results

A total of 148 records were identified through the database searching, with no duplicates identified. The titles and abstracts of 148 papers were screened. Of these 145 were excluded, with the remaining 3 full-text articles assessed by full read for eligibility. 1 article was excluded due to use of an excluded intervention method, with the remaining 2 studies selected for data collection and synthesis (Table 3). This process is demonstrated through **Figure 2.**

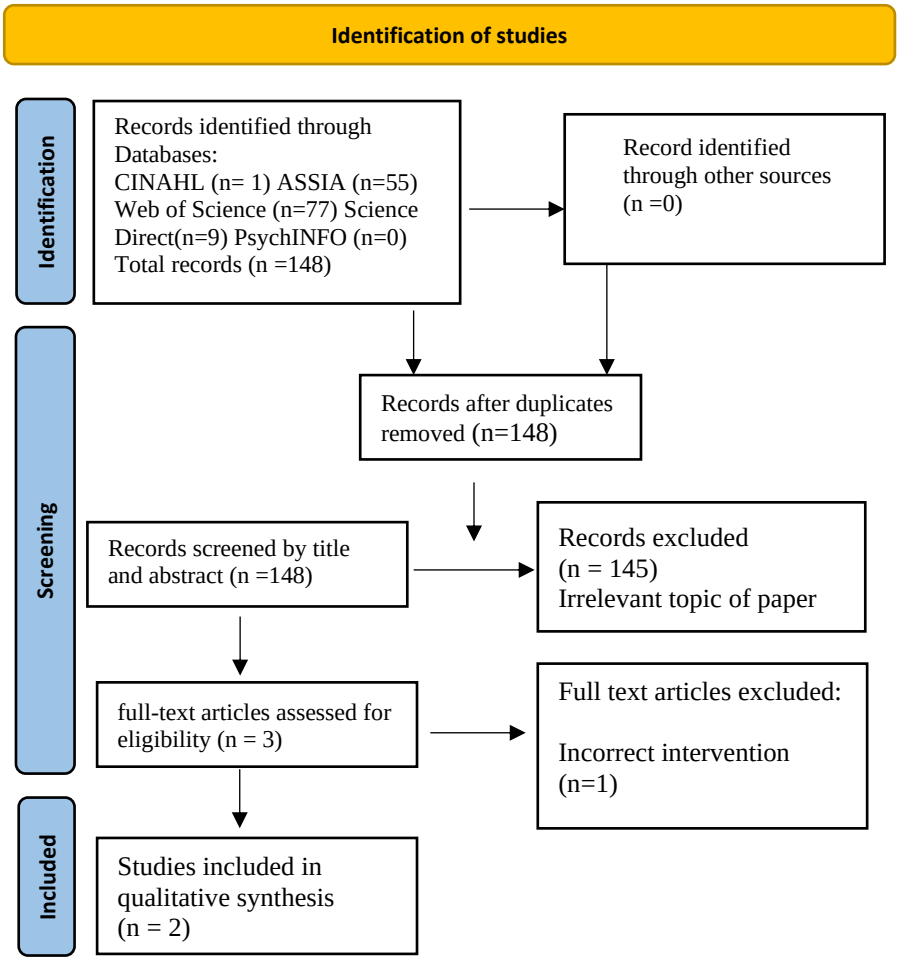

Figure 2: Prisma flow diagram

Table 3. Studies selected for inclusion

Author(s) and year	Location/participant characteristics	Study design	Study aims	Key findings
Katito and Davies, (2020)	Oxford, UK. 12 selected adults from BAME population residing in one postcode district in Southern England.	Semi-structured interviews, purposive sampling	To explore the social-ecological factors related to PA participation among BAME immigrants	The interplay between interpersonal factors and environmental factors has an integral role in influencing participation in PA
Soltani, Botticello and Watts, (2021)	22 first-generation Iranian migrant women, aged 24 – 64, residing in London.	Semi-structured, interviews; thematic analysis	To explore the physical activity of Iranian migrant women in the United Kingdom	Migration can free traditional Iranian women from social and cultural restraint, motivating them to exercise. Lack of cohesiveness and physical activity resources noted within this population. Motivation and loss of priority on arrival in UK lead to decline in the women's physical activity.

Through application of Inductive Content Analysis (ICA), four conceptual categories were identified: influence of social culture, "limitless" effects of empowerment, power of knowledge, and external elements. The categorisation process undertaken for this is demonstrated within Table 4.

Inductive qualitative content analysis having been established as a credible, dependable, conformable, transferable, and authentic method of qualitative data analysis (Elo *et al.*, 2014) that enables researchers to understand social reality subjectively yet scientifically (Tenny, Brannan and Brannan, 2022).

Table 4: Categories identified through Inductive Content Analysis

Subcategories	Categories	Conceptual Categories
Impact of social culture, class, gender, and family on PA	Social culture	Influence of social culture and networks
Liberal family background		
Family pressures		
Family constraints		
Cultural and social norm perceptions		
Impact on culture		
PA participation as western culture only		
Impact on social network/peer pressure	Social network	
Maintenance of social status		
Social acceptability		
Lack of cohesion within community		
Absence of social networks		
Hostility within neighbourhood		
Gender differences	Gender perceptions	
Empowerment	Empowerment	"Limitless'-Effects of empowerment
Autonomy independence for decision making		
Motivation and time management		
Freedom of expression		
Non-judgement attitude of others		
Psychological trauma	Mental well-being	
Negative personal experiences		
Education attainment and skills	Educational influence	Power of knowledge
Lack of knowledge of PA resources	Knowledge and awareness	
PA not necessary		
Absence of emphasis on the need to PA		
Engage only if recommended by a doctor		
Job as a substitute for PA		
Perception of PA as a formal activity only		
Prioritising work commitments	External factors	External elements
Financial stability		
Economic factors for example cost		
Fear of deportation -isolation		
Other Priorities		
limited exposure to PA participation		
Environmental for example weather	Environmental Factors	
Social environmental factors		
Accessibility of PA activities	Resource Availability	

Discussion

Social culture is a complex set of meanings, norms, attitudes, and behaviours that have been embraced by one or more social formations (Burke et al., 2009; Tenny, Brannan and Brannan, 2022). The influences of an individuals' social culture and network can be persuasive and influential in determining their physical and mental wellbeing as demonstrated within Koshoedo et al., (2015) and Higgins, Nazroo and Brown, (2019). Both selected studies identified that moving country impacted upon their cultural practices and habits, resulting in many psychological and social changes, such as diet, social interaction, and levels of activity. Soltani *et al. (2021*) identified that an individual's own culture and upbringing can have a strong bearing on their perceptions of acceptable behaviours, such as gender appropriate activities. It was found that external factors such as the presence of free sports facilities in public parks and private gyms may enable more minority women to participate in physical activity, thereby enhancing mental health and wellbeing. This finding is substantiated by Katito and Davies, (2020), although it was found that for some BAME women their social culture stigmatises the engagement in physical activities, as such they are not encouraged.

This review found that the variety of social and cultural norms in today's ethnic minority culture has made obesity interventions focussing on physical activity stigmatising for some women, although for others they have found new meanings within it, particularly for those with more 'liberal' family backgrounds. Similar findings were observed by Thedinga, Zehl and Thiel, (2021) and Caprio et al., (2008), whereby individuals appeared to be engaging in such activities for fun, health, as a way of socialising or to practise it as a means of meeting societal norms. Regardless of their reasons, Vlaev et al., (2019) emphasise that initiatives such as fast contacts are effective incentives for new members to embrace healthy initiatives building social network of individuals with similar goals and values.

Katito and Davies, (2021), identification of some of the barriers that prevent BAME adults from participating in physical activities may be a great asset in aiding the development of initiatives that are more likely to be taken up by minority groups within the UK BAME population. However, recognition of the needs of immigrant populations recently moved to the UK represent a subset of the BAME population that may have even lower participation rates in the physical activity (Ajayi, 2021) or other mental health and wellbeing initiatives, when compared to those of the general population. The participation rates of immigrants in initiatives such as physical activity are much lower for a variety of reasons. Kuo (2014) suggests that this may possibly be linked to acculturation; the process of cultural, psychological, and social changes that occur during an individual's adaptation to a new culture (Sam and Berry, 2010).

Culture is a uniquely complex concept coming from the shared experiences of a group of people living and working together, enabling the learning from, and making sense of communal experiences (Wakefield et al.,2017). Such communities can influence an individuals' social network in positive ways through social acceptability and inclusion, but conversely may become a form of peer pressure whereby conformity is required, potentially inhibiting the effective engagement in mental health and wellbeing initiatives.

This review found that there are several cultural factors that influence physical activity participation as a means of enhancing health and wellbeing, including their perspectives on health, levels of education, literature attitudes, expectations, and language. Studies such as Atkins, Uskul and Cooper, (2016) have also identified the impact of culture in shaping attitudes towards involvement in physical activities, these being one of the major barriers in ethnic

minority populations (Ige-Elegbede et al., 2019). Significant gender differences have been observed regarding the acceptability of engagement in physical and sporting activities, (Roche et al., 2022) exacerbating the challenges in designing effective mental health and wellbeing initiatives in the obese within the BAME population, although for some, such opportunities are highly valued (Ajayi, 2021). This is evidenced within some Asian cultures where cricket is preferred to swimming by women as this does not expose women's bodies (Turner et al., 2015; Ige-Elegbede et al., 2019; Roche et al., 2022). It is noted that for many cultures within the UK generally, physical activities including household chores and physical labour are not considered physical activities in the same way as recreational, sport and leisure activities.

In many BAME cultures, women are traditionally expected to maintain domestic responsibilities and care for children (Roche et al., 2022), making it unacceptable to take time away from these responsibilities to participate in recreational or leisure-related physical activities (Bethancourt et al., 2014). This review findings demonstrate that attitude, family pressures, family constraints, cultural and social norm perceptions impact on what is deemed acceptable in respect of initiatives directed towards obesity management. This is exacerbated by perceptions of engagement in physical activity as only being a part of western culture (Conn et al., 2013; Elshahat and Newbold, 2021).

This study corroborates the findings of others such as Tuso (2015) in terms of the impact of faith beliefs and practices upon an individual's ability to engage in regular health initiatives including physical activities. Bethancourt et al, (2014) identified that the Muslim call to prayer at intervals throughout the day may impact upon individuals' ability to engage in regularly scheduled activities. The selected studies found that in some cultures, particularly Islamic cultures, clothing requirements can restrict involvement in many physical health and wellbeing activities, particularly in women where their clothing enables expression of their culture, religious values, and rejection of Western cultures (Kramer et al.,2002; Trigwell et al., 2015). Many BAME communities prioritise the responsibilities of one's family and community should supersede opportunities for leisure and relaxation (Ajayi, 2021), and to do otherwise maybe perceived as selfish.

The power of knowledge is found to be significant in enabling engagement with physical activities and the health-related benefits of this particularly within older adults within the BAME population (Ige-Elegbede et al., 2019; Mbabazi et al., 2022b). Unfortunately, many people within the UK BAME population have been shown to have low educational levels, resulting in limited skills and low-income earnings (Zajacova and Lawrence, 2018). It can be argued that there is a direct correlation between limited education and socio-economic status necessitating the prioritising of work commitments and the efficacy of interventions aimed at enhancing physical and mental wellbeing (Nnyanzi, 2016; Mbabazi et al., 2022a).

This research identified 'External Elements' as the final primary category that may be prohibitive to the effective implementation of obesity intervention measures, corroborating the findings of Memon et al., (2016) and Hammarlund, Nilsson and Gummesson, (2015). Migration has for many, been linked to the loss of a professional role, reliable source of income and social networks as established by Soltani et al., (2021). Given this, many ethnic minority groups will prioritise their work commitments to secure a reliable income, rather than leisure activities (Pampel, Krueger, and Denney, 2010; Roche et al., 2022). Research has established a link between individuals who migrated to the UK and other European countries, and an increase in weight gain due to a reduction in physical activity because of inclement weather, particularly the

winter Bhatnagar 2017; Basu et al., 2022; Roche et al., 2022). As a consequence, it could be suggested that more affordable indoor facilities are needed to aid in addressing this issue.

Though many individuals may be considered inactive, consistent physical activity is a significant factor in determining good mental health and wellbeing. The development of interventions to overcome difficulties such as those identified within this research requires the identification of the barriers to wider involvement.

Conclusion

Obesity and the complexities in effectively addressing this within the UK BAME population, continues to be significant public health concern and financial burden on the NHS and supporting social care services. As such there is a clear need to effectively identify and address the compounding factors impacting upon enabling members of the BAME population to engage with meaningful obesity reduction strategies. Within complex systems, social determinants interact at several levels, creating direct and indirect effects on mental health and physical wellbeing. Understanding the social determinants of mental well-being in obese people is critical for determining appropriate interventions to improve the quality of holistic outcomes. Further research into the mechanisms by which the social determinants exacerbate mental health problems and the continuance of sedentary lifestyles within BAME individuals is essential if meaningful interventions are to be developed.

Limitations

This study was limited by the lack of primary research available for review on the question posed. This impacts upon the generalisability of the findings and conclusions made.

Recommendation

Further primary research is required into the identification of, and mechanisms by which social determinants exacerbate mental health and wellbeing issues in obese BAME individuals. This will enable the development of local whole system approaches whereby all key stakeholders including the target population are proactively involved.

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Appendix 1

Social Determinants of mental health and wellbeing amongst obese BAME Adults in the UK: A narrative review

CINAHL

#	Query	Limiters/Expanders	Last Run Via	Results
S1	social determinants of health	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	13,669
S2	(MH "Social Determinants of Health")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	9,669
S3	S1 OR S2	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	13,669
S4	mental health or mental illness or mental disorder or psychiatric illness	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	246,929
S5	wellbeing or well-being or wellbeing or quality of life or wellness or health or positive affect or mental health	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	2,264,671
S6	(MH "Mental Health")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search	53,267

			Database - CINAHL Ultimate	
S7	(MH "Quality of Life")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	137,441
S8	(MH "Psychological Well-Being")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	33,521
S9	S4 OR S5 OR S6 OR S7 OR S8	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	2,304,076
S10	S3 AND S9	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	13,669
S11	obesity or overweight or fat or obese or unhealthy weight or high bmi	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	220,380
S12	(MH "Obesity, Morbid") OR (MH "Obesity+")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	114,852
S13	S11 OR S12	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen -	220,965

			Advanced Search Database - CINAHL Ultimate	
S14	ethnic minorities or ethnic minority or racial minority or racial minorities or ethnic group	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	49,214
S15	black or asian or ethnic minority or minority ethnic or bame or bme	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	130,345
S16	(MH "Minority Groups")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	14,239
S17	(MH "Asians+") OR (MH "Black Persons+")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	91,405
S18	S14 OR S15 OR S16 OR S17	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	191,619
S19	S10 AND S13 AND S18	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	121
S20	united kingdom or uk or britain or scotland or england or wales or northern ireland	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases	438,054

			Search Screen - Advanced Search Database - CINAHL Ultimate	
S21	(MH "United Kingdom+") OR (MH "Great Britain+")	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	343,010
S22	S20 OR S21	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	438,054
S23	S19 AND S22	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	6
S24	S19 AND S22	Limiters - Published Date: 20120101-20221231; Age Groups: All Adult Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Ultimate	1

ASSIA

(social determinants of health) AND (MAINSUBJECT.EXACT("Quality of life") OR MAINSUBJECT.EXACT("Mental health") OR MAINSUBJECT.EXACT("Quality of life") OR MAINSUBJECT.EXACT("Psychological wellbeing") OR mental health OR mental illness OR mental disorder OR psychiatric illness OR wellbeing OR well-being OR wellbeing OR quality of life OR wellness OR positive affect OR mental health) AND (MAINSUBJECT.EXACT("Obesity") OR obesity OR overweight OR fat OR obese OR unhealthy weight OR high bmi) AND (MAINSUBJECT.EXACT("Ethnic minorities") OR MAINSUBJECT.EXACT("Minority groups") OR MAINSUBJECT.EXACT.EXPLODE("Asian people") OR MAINSUBJECT.EXACT.EXPLODE("Black people") OR ethnic minorities OR ethnic minority OR racial minorities OR ethnic group) AND (MAINSUBJECT.EXACT.EXPLODE("UK") OR united kingdom OR britain OR scotland OR england OR wales OR northern ireland) AND (yr(2012-2022) AND PEER(yes)) AND location.exact("United Kingdom UK" OR "England" OR "Scotland" OR "Northern Ireland" OR "Wales") OR "Wales")

Limited to adults and 2012-2022=55

Web of Science

((((ALL=(social determinants of health)) AND ALL=(mental heath OR mental illness OR mental disorder OR psychiatric illness OR wellbeing OR well-being OR well being OR quality of life OR wellness OR health OR postive affect OR mental heath)) AND ALL=(obesity OR overweight OR fat OR obese OR unhealthy weight OR high bmi)) AND ALL=(ethnic minorities OR ethnic minority OR racial minority OR racial minorities OR ethnic group OR black OR asian OR ethnic minority OR minority ethnic OR bame OR bme)) AND ALL=(united kingdom OR uk OR britain OR scotland OR england OR wales OR northern ireland)

Limited to 1 Jan 2012 t 10 Nov 2022

Science Direct

(Social determinants of health) AND (mental health OR wellbeing) AND
(obesity) AND (BAME) AND adult

Limited to 2012 - 2022

PsychINFO

#	Query	Limiters/Expanders	Last Run Via	Results
S1	social determinants of health	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	5,023
S2	mental health or mental illness or mental disorder or psychiatric illness	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	810,955
S3	wellbeing or well-being or well being or quality of life or wellness or health or positive affect or mental health	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	1,557,456
S4	DE "Mental Health" OR DE "Athlete Mental Health" OR DE "Mental Health Disparities" OR DE "Mental Status"	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search	92,208

			Database - APA PsycInfo	
S5	DE "Quality of Life" OR DE "Health Related Quality of Life" OR DE "Quality of Work Life"	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	67,156
S6	S2 OR S3 OR S4 OR S5	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	1,656,871
S7	S1 AND S6	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	5,023
S8	obesity or overweight or fat or obese or unhealthy weight or high bmi	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	65,116
S9	DE "Obesity"	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	33,091
S10	S8 OR S9	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	65,116

S11	ethnic minorities or ethnic minority or racial minority or racial minorities or ethnic group	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	69,339
S12	black or asian or ethnic minority or minority ethnic or bame or bme	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	164,620
S13	DE "Minority Groups" OR DE "Asians" OR DE "Chinese Cultural Groups" OR DE "Japanese Cultural Groups" OR DE "Korean Cultural Groups" OR DE "South Asian Cultural Groups" OR DE "Southeast Asian Cultural Groups" OR DE "Vietnamese Cultural Groups" OR DE "Blacks"	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	101,160
S14	S11 OR S12 OR S13	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	212,265
S15	united kingdom or uk or britain or scotland or england or wales or northern ireland	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	508,680
S16	S7 AND S10 AND S14 AND S15	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo	1

Limited to adults and 2012-2022 – Results = 0