




Barriers and Facilitators of Physical Activity

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Abstract

Background Physical inactivity accounts for 16.6% of deaths in the United Kingdom. This study aims to review the recent (2016–2021) systematic reviews (SRs) on the facilitators and barriers to physical activity (PA) participation among (UK)-based adults. **Methods** Using the Participants, Interventions, Comparators, and Outcomes framework and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses strategy, a SR of SRs of studies on the facilitators and barriers to PA among (UK)-based adults, published between 2016 and December 3, 2021, in the PubMed, SCOPUS, or Cochrane Database of Systematic Reviews, was done.

Results Three SRs (each published in 2016, 2019, and 2021) were included and reviewed in the study. None of the reviewed SR included a study conducted during the coronavirus disease 2019 (COVID-19) pandemic; also, a paucity of primary studies on PA among (UK)-based adult black, Asian, and ethnic minorities populations was recorded. Having a knowledge/appreciation of the benefits of PA, having the opportunity for social interaction/participation and PA-related support, and having a safe environment for PA were the persistently reported facilitators to PA among (UK)-based adults. On the other hand, having language difficulties/language barrier, lack of time, and having underlying health problems were the persistently reported barriers to PA among them. Not all the included SRs received project funding.

Conclusion The outcomes of this study had identified contemporary research gaps regarding the current challenges related to PA among (UK)-based adults. It is a fact that COVID-19 has come to stay in the (UK) and, as a result, it has affected ways of living, especially PA; hence, there is an imminent need for a SR to collate current primary evidence, with regards to the COVID-19 pandemic, on the facilitators and barriers of PA among (UK)-based adults.

Keywords

- ▶ barriers
- ▶ facilitators
- ▶ physical activity
- ▶ adult
- ▶ UK
- ▶ review
- ▶ COVID-19

Introduction

Physical activity (PA) can be defined as any body movement generated by the contraction of skeletal muscles that raises energy expenditure.¹ The health benefits associated with PA

are significant and it cuts across all age groups; PA helps in the prevention and management of cancers, cardiovascular diseases, diabetes, obesity, mental health, cognitive learning, growth and healthy development, and overall well-being.^{2,3}

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PA has been recommended by the World Health Organization (WHO) for all age groups, including the infants, the elderly, people living with disabilities and/or chronic diseases, and pregnant women.^{2,3} However, 25% of the global adult population do not meet up with the WHO's recommended prescription of PA for their age, and approximately 5 million people die yearly due to low PA.¹ This shows that PA is an issue of serious global health concern.

Several factors have been identified to influence PA among adults⁴⁻¹²; these factors exist in three levels: intra-personal (or individual), interpersonal, and environmental (or community) levels.⁴⁻⁷ At the intrapersonal level, educational status, medical knowledge, motivation to maintain physical and mental health, self-consciousness, sport skills, level of commitment to PA, availability of time and financial resources, interest in exercise, socioeconomic status, and emotions (anger, frustration, and anxiety) are the factors that have been identified.^{4-7,9} At the interpersonal level, social support, availability of assistance in change management, and willingness to participate in a group were factors that have been identified.^{4,6} At the environmental level, access to PA facilities, political factors, safety, lightening, cleanliness and tidiness of neighborhoods, atmospheric conditions, and geographical landscape were the factors that have been identified.⁸⁻¹² Overall, these factors can be grouped into three key determinant factors: attitude, motivation, and self-efficacy.^{13,14}

In the United Kingdom, physical inactivity, just like smoking, accounts for 16.6% of deaths; overall, this costs the (UK) about £7.4 billion yearly.¹⁵ Furthermore, approximately 20% of (UK)'s population is less active unlike in the 1960s; if this present trend continues, approximately 35% of (UK)'s population will be less active by the year 2030.¹⁵ Worryingly, many people in the (UK) are yet to understand the mental and physical health benefits of PA.¹⁵

The current coronavirus disease 2019 (COVID-19) pandemic has brought unprecedented disruptions to the ways things are done in the (UK)^{16,17} The pandemic has largely impacted on ways of life, including PA.^{18,19} In fact, the facilitators and barriers to PA have been modified by the current pandemic.^{18,19} Over the last decades, several studies, including systematic reviews (SRs), had been conducted on PA among several (UK) population groups—including the black, Asian, and ethnic minorities (BAME) groups.²⁰⁻²⁸ However, no known study has investigated the SRs conducted on the barriers and facilitators of PA among adults in the (UK) till date. A comprehensive evaluation of recent (2016–2021) SRs on the facilitators and barriers to PA among adults in the (UK) will help to collate and pinpoint current and credible evidence on the current challenges associated with PA among (UK) adults.

Using the Participants, Interventions, Comparators, and Outcomes framework,²⁹ and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses strategy,³⁰ this review aims to categorize, analyze, and summarize the findings of recent (2016–2021) SRs on the facilitators and barriers to PA among (UK)-based adults.

Review Question(s)

What are the findings obtained in the recent (2016–2021) SRs on the facilitators and barriers to PA participation among (UK)-based adults (aged 18 years and above)?

Methods

Operational Terms

Barrier to PA: this is factor that prevents satisfying and regular participation in PA.¹²

Facilitator to PA: this is a factor that enables an individual to voluntarily engage in PA of quality time.¹²

PA: this can be defined as any body movement generated by the contraction of skeletal muscles that raises energy expenditure.¹

Databases and Time Frame

The following databases were used for the literature search: PubMed, SCOPUS, and Cochrane Database of Systematic Reviews. The search, done on December 3, 2021, focused on reviews published from 2016 till the date of search.

Search Strategy

Using Boolean operators (“AND” and “OR”), a filtered search of the identified databases was done using a combination of Medical Subject Heading keywords and its synonyms: PA, SR, (UK), and United Kingdom (►Table 1). The flowchart of the search strategy is depicted in ►Fig. 1.

Selection Criteria

The criteria for selection of identified SRs are presented in ►Table 2. Only the SRs published: in English language; in peer-reviewed journals; on facilitators and barriers of PA; on (UK)-based population groups only; and from 2016 and above were included in this study. The relevant SRs to be included in this review were jointly identified by two reviewers—J.M. and K.K.K.—after screening of the title, abstract, or full texts of the literature obtained from the database search.

Quality Assessment

A Measurement Tool to Assess systematic Reviews (AMSTAR),³¹ a validated tool for assessing methodological quality of SRs, was used to assess the included SRs for quality. The AMSTAR tool uses 16 questions for quality assessment (►Table 3). The assessment was done by two reviewers.

Data Extraction and Analysis

Following the identification of the relevant SRs, the data extraction was done by two reviewers—J.M. and K.K.K. From each of the included SRs, data obtained were synthesized by generating descriptive tables reporting the names of the authors, year of publication, number of included studies, total number of participants, ethnic backgrounds of participants, number of included articles related to COVID-19, research design of included articles, whether performed

Table 1 Search strategy used for the study

Database	Search combination	Hits	Relevant articles
PubMed	((“physical activity”[Title/Abstract] AND “systematic review”[-Title/Abstract] AND “UK”[Title/Abstract]) OR “united kingdom”[-Title/Abstract]) AND ((ffrft[Filter]) AND (systematicreview[Filter]) AND (2016:2021[pdat]) AND (english[Filter]))	319	2
SCOPUS	(TITLE-ABS-KEY (physical AND activity) AND TITLE-ABS-KEY (systematic AND review) AND TITLE-ABS-KEY (united AND kingdom)) AND (LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016)) AND (LIMIT-TO (AFFILCOUNTRY, “United Kingdom”)) AND (LIMIT-TO (LANGUAGE, “English”)) AND (LIMIT-TO (SRCTYPE, “j”))	67	1
Cochrane Database of Systematic Reviews	“physical activity” in Title Abstract Keyword AND “systematic review” in Title Abstract Keyword AND “United Kingdom” in All Text - (Word variations have been searched)	6	0

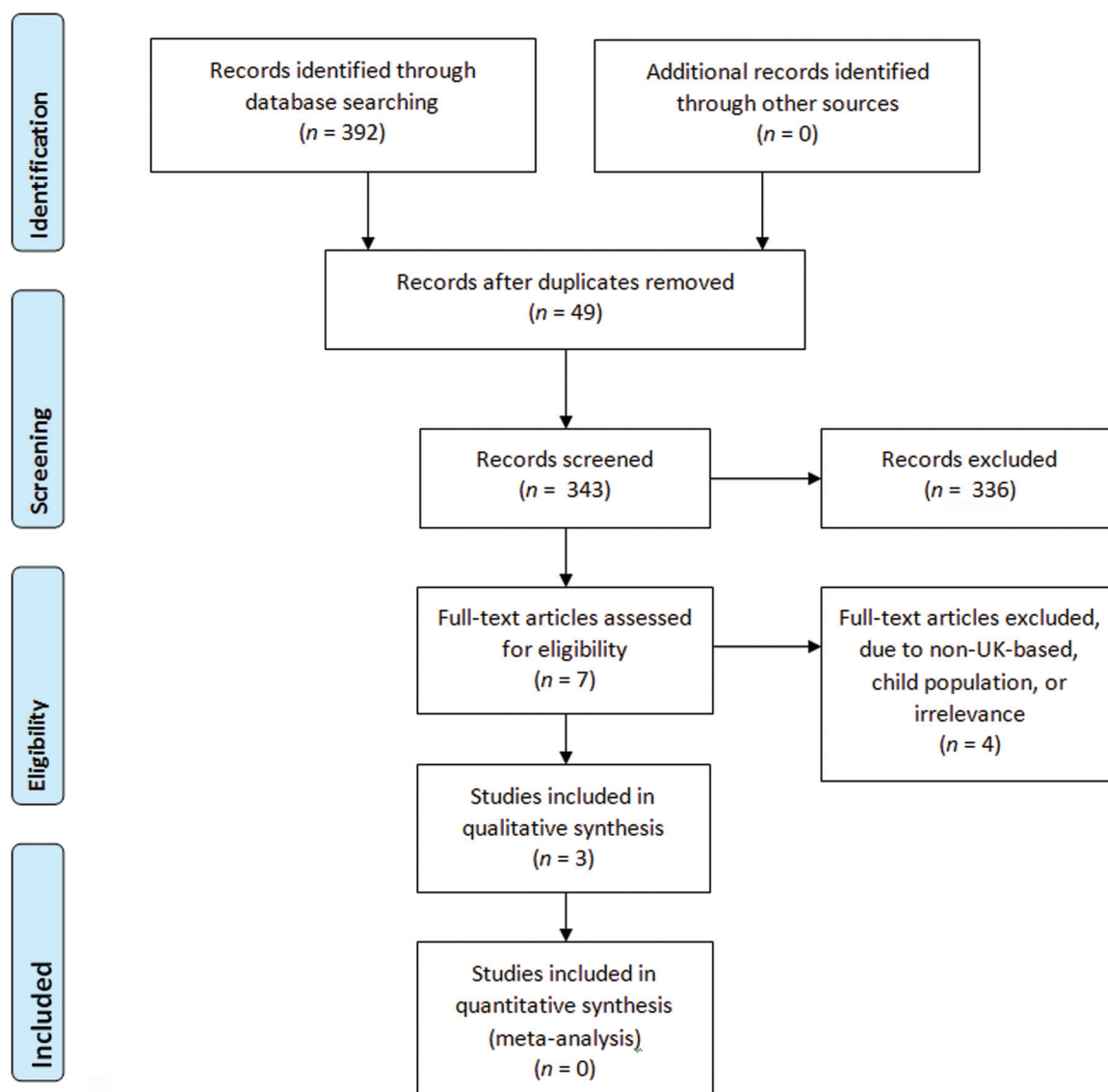
**Fig. 1** Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram.

Table 2 Criteria for article selection

Inclusion criteria	
1.	Papers published in English
2.	Peer-reviewed journal papers
3.	Related to adults aged 18 years and above
4.	SRs of studies done on (UK)-based population groups only
5.	Related to facilitators and barriers of physical activity
6.	Published from 2016 upwards
7.	Articles with available full text (this applies only to PubMed) ^a
Exclusion criteria	
1.	Papers not published in English
2.	Non-peer-reviewed journal papers
3.	Related to children (17 years and below)
4.	SRs of qualitative or mixed-method studies done on non-(UK) BAME population groups only
5.	SRs of only quantitative studies done on (UK)-based and non-(UK) BAME population groups only
6.	Not related to physical activity and lifestyle choices
7.	Published before 2016

Abbreviations: BAME, black, Asian, and ethnic minorities; SR, systematic review.

^aAuthors have full access to publications on SCOPUS.

quality appraisal and risk of bias assessments, and data analysis. The findings were presented in a chronological manner.

Results

Search Outcomes

The literature search yielded 392 publications (PubMed, $n = 319$; SCOPUS, $n = 67$; Cochrane Database of Systematic Reviews, $n = 6$). During de-duplication, 49 publications were excluded, leaving 343 publications for screening for title, abstract, and/or full texts. After screening, 341 publications were excluded due to lack of relevance. In addition, no additional publication was obtained from manual literature searches (► Fig. 1).

Characteristics of Included SRs

The included SRs reviewed a range of 3 to 33 studies on PA published between 1995 and 2020, with the SR by Morgan et al²¹ having the highest number ($n = 33$) of included studies. Only one of the analyzed SRs²¹ included a longitudinal study in its review. Only two^{20,21} out of the three analyzed SRs described the ethnic backgrounds of the participants in the included studies. None of the analyzed SRs included a PA-related study conducted during the COVID-19 pandemic (► Table 4).

Quality Assessment

► Table 3 shows the quality assessment outcomes of the included SRs.

Population Characteristics

Only two of the included SRs reported the ethnicities of studied participants (► Table 4). All the included SRs

reviewed studies conducted on (UK) adult population groups, except for the SR by Morgan et al²¹ which included a study, out of 33 studies, from the Netherlands.

Facilitators to PA

► Table 5 shows the full list of the synthesized facilitators (a thematic area) to PA from the included SRs. These facilitators were grouped into three subthemes: intrapersonal, interpersonal, and environmental level. At the intrapersonal level, “having a knowledge/appreciation of the benefits of PA” was a barriers reported by all the included SRs.^{20,21,28} At the interpersonal level, “having the opportunity for PA-related support and social interaction/participation” was a facilitator reported by all the included SRs.^{20,21,28} At the environmental level, no facilitator was commonly reported in all the included SRs. However, only two SRs reported “having a safe environment for PA” as a facilitator to PA.^{20,21}

Barriers to PA

► Table 6 shows the full list of the synthesized barriers (a thematic area) to PA from the included SRs. These barriers were grouped into three subthemes: intrapersonal, interpersonal, and environmental level. At the intrapersonal level, “having language difficulties/language barrier,” “lack of time,” and “having underlying health problems” were the ‘barriers’ reported by all the included SRs.^{20,21,28} At the interpersonal level, no barrier was commonly reported in all the included SRs. However, only two SRs reported “lack/loss of social/external support” and “inadequate support from health care professionals/providers” as barriers to PA. At the environmental level, no barrier was commonly reported in all the included SRs. However, only two SRs

Table 3 Quality assessment outcome of the included SRs using the AMSTAR tool

Items	Questions ³⁰	Response		
		Paper 1 ²⁸	Paper 2 ²⁰	Paper 3 ²¹
1	Did the research questions and inclusion criteria for the review include the components of PICO?	Yes	Yes	Yes
2	Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?	Yes	Partial yes	Partial yes
3	Did the review authors explain their selection of the study designs for inclusion in the review?	Yes	No	No
4	Did the review authors use a comprehensive literature search strategy?	Yes	Partial yes	Partial yes
5	Did the review authors perform study selection in duplicate?	Yes	Yes	Yes
6	Did the review authors perform data extraction in duplicate?	Yes	Yes	Yes
7	Did the review authors provide a list of excluded studies and justify the exclusions?	Yes	Yes	Yes
8	Did the review authors describe the included studies in adequate detail?	Yes	Partial yes	Partial yes
9	Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?	Included only NRSI	Included only NRSI	No
10	Did the review authors report on the sources of funding for the studies included in the review?	Yes	No	Yes
11	If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
12	If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
13	Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?	Yes	Yes	Yes
14	Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?	Yes	Yes	Yes
15	If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
16	Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?	Yes	Yes	Yes

Abbreviations: AMSTAR, A Measurement Tool to Assess systematic Reviews; NRSI, nonrandomized studies of interventions; PICO, Participants, Interventions, Comparators, and Outcomes; SR, systematic review.

reported “perception/lack of an unsafe environmental safety for PA” as a barrier to PA.

Sources of Funding

Only two,^{21,28} out of the three, included SRs received financial support for the study.

Discussion

The findings obtained in this study are noteworthy. To start with, this research identifies paucity of primary studies on the facilitators and barriers of PA among (UK)-based adults, more especially among the BAME population group.²⁰ Pertinently, among (UK) adults, those from the BAME background are the groups with relatively lower level of PA recorded

among them.³² The existing paucity of primary studies exploring the facilitators and barriers to PA among BAME groups make health interventions focused on PA difficult to plan and implement in BAME communities. The goal of a PA-focused health intervention is to achieve a positive health outcome regarding PA. For this goal to be meaningfully achieved, the factors (i.e., facilitators and barriers) driving the uptake of such intervention need to be deeply understood. Hence, it is highly recommended that these identified knowledge gaps are filled through research.

SRs aim to categorize, analyze, and summarize the findings of all relevant individual studies on a health-related issue; hence, making the available evidence more accessible to policy makers.³³ It was noted in this study that no known SR had been conducted on studies exploring the current (i.e.,

Table 4 Analysis of the included SRs

A; PY [Ref.]	NIA	YRP	NIARC	TNP	EBP	RDIA	Funding
Horne et al, 2021 ²⁸	3	2007 to 2020	0	277	Not specified	Qualitative studies = 2; survey = 1	Supported by the Open University, UK
Ige-Elegbede et al, 2019 ²⁰	10	2007 to 2015	0	499	BAME and Caucasians	Qualitative studies = 10	Study was not funded
Morgan et al, 2016 ²¹	33	1995 to 2013	0	> 9,261	BAME and Caucasians	Qualitative studies = 24 (1 was a qualitative study in a RCT); survey = 8; longitudinal = 1	Supported by the National Institute for Health & Care Excellence, UK

Abbreviations: A, authors; BAME, black, Asian, and ethnic minorities; EBP, ethnic backgrounds of participants; NIA, number of included articles; NIARC, number of included articles related to COVID-19; PY, publication year; RCT, randomized control trial; RDIA, research design of included articles; SR, systematic review; TNP, total number of participants; YRP, year range of publications.

Table 5 Summary of facilitators (a thematic area) to PA

Subthemes	Facilitator		
	Paper 1 ²⁸	Paper 2 ²⁰	Paper 3 ²¹
Intrapersonal/Individual			
Having a knowledge/appreciation of the benefits of PA	Y	Y	Y
Having the opportunity to improve health and well-being		Y	
Previous participation in PA	Y		
Having religious norms that favor PA		Y	Y
Making exercise a habit			Y
Having a desire for different types of PA			Y
Having a liking for gym-based activities			Y
Having individualized and personalized PA service			Y
Interpersonal			
Having the opportunity for PA-related support and social interaction/participation	Y	Y	Y
Getting PA-related support and counsel from healthcare professionals		Y	Y
Having a range of culturally approved PAs		Y	
Consultation with the local community regarding the design and management of exercise centers		Y	
Support and counsel from religious leaders		Y	
Support and counsel from family, friends, and/or others		Y	Y

Table 6 Summary of barriers (a thematic area) to PA

Subthemes	Barrier		
	Paper 1 ²⁸	Paper 2 ²⁰	Paper 3 ²¹
Intrapersonal/Individual			
Having language difficulties/language barrier	Y	Y	Y
Performing a caring role	Y		
Lack of cultural awareness			Y
Religious fatalism		Y	
Having a feeling of aging (getting old)	Y		
Having perceived harm threshold of PA		Y	
Changes in lifestyle and sedentary living		Y	
Lack of time	Y	Y	Y
Lack of money/high cost		Y	Y
Tiredness from work	Y		
Seeing exercise as part of a job		Y	
Having underlying health problems	Y	Y	Y
Having cultural association of western sports as alien		Y	
Feeling uncomfortable to exercise in public		Y	
Having low level of health literacy		Y	
Associating fertility with obesity		Y	
Perceived poor/negative outcomes of exercise referral schemes			Y
Interpersonal			
Lack/loss of social/external support		Y	Y
Strong tie to spouse	Y		
Safety concerns about person(s) under one's care	Y		
Inadequate support from healthcare professionals/providers		Y	Y
Having a range of culturally approved PAs			
Cultural inappropriateness of exercise due to modesty concerns		Y	
Belonging to a minority group		Y	
Inability to participate socially in group activities	Y		
Social roles and expectations of women in the society		Y	
Not accommodating cultural/religious requirements			Y
Environmental			
Lack of a suitable/adequate space to perform PA or a		Y	
Perception/lack of an unsafe environmental safety for PA		Y	Y
Lack of privacy		Y	
Lack of a conducive environment for PA			Y
Having a dislike for the atmosphere and environment for PA			Y
Having a difficulty in operating gym equipment			Y
Lack of easy access to exercise venue			Y

Abbreviations: PA, physical activity; Y, yes.

during the COVID-19 pandemic) facilitators and barriers to PA among (UK)-based adults.^{20,21,28} The recent SRs (2016 till date) on the facilitators and barriers of PA among (UK)-based adults were based on studies that were conducted before the COVID-19 pandemic^{20,21,28}; hence, they may not be up to date with the current challenges in the (UK) The COVID-19

pandemic has brought significant changes to people's lifestyles, including PA.^{18,19} This change has modified the facilitators and barriers of PA among (UK)-based adults.^{18,19} Hence, there is a need for a SR of current primary studies (conducted from 2020 till date) exploring the facilitators and barriers to PA among (UK)-based adults.

The analysis of the recent SRs on the factors driving PA among (UK) adults identified knowledge of PA benefits, social interaction/participation, and safety of environment for PA as the most persistently reported facilitators to PA among (UK) adults. With the current social distancing protocol and other COVID-19 safety protocols in the (UK),³⁴ there is a possibility that social interaction/participation may no longer be a too-relevant driving factor of PA among (UK) adults. Hence, this further justifies the need for a SR of current evidence on the drivers (i.e., barriers and facilitators) of PA.

Importantly, it was observed that SRs on the facilitators and barriers of PA attracted very limited funding. This may justify the reason why paucity of SRs exists on these thematic areas among the (UK) BAME and Caucasian populations. With the current statistics on the health and socioeconomic burden associated with physical inactivity and low PA among (UK) adults,¹⁵ there is a need for a more focus on research on contemporary PA-related issues created by the ongoing COVID-19 pandemic.

However, this study has its limitations. First, this study focused on studies indexed on PubMed, SCOPUS, and Cochrane Online Library databases only; there is a possibility that studies not indexed in these databases might have been excluded. However, according to the AMSTAR guideline, the use of at least two databases is considered adequate for sourcing for literature in SRs.³¹ Second, meta-analysis of the facilitators and barriers to PA was not conducted in this study; hence, this study did not seek to determine the estimated prevalence of these factors. Also, a justification for not doing meta-analysis in this study was that the included SRs were predominantly based on qualitative studies. Third, this study was focused on SRs of studies conducted among (UK) adult populations; hence, the interpretation of findings obtained in this study must be done with caution as it did not cover non-(UK) and child population groups.

Nonetheless, this study has its strengths. This study is believed to be the first study to review SRs conducted on the facilitators and barriers of PA among (UK) adults. Also, this study identified absence of a SR on the current drivers (facilitators and barriers) of PA among (UK) adults.

In conclusion, the outcomes of this study highlight contemporary research gaps regarding the current challenges related to PA in the (UK). It is a fact that COVID-19 has come to stay in the (UK) and, as a result, it has affected ways of living, especially PA; hence, there is an imminent need to update current knowledge on the facilitators and barriers of PA in the (UK)

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Conflict of Interest

None declared.

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