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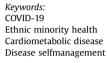


Diabetes & Metabolic Syndrome: Clinical Research & Reviews

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COVID-19, ethnicity and cardiometabolic disease self-management in UK primary care



Cardiometabolic diseases (e.g. cardiovascular disease, diabetes, hypertension, chronic kidney disease) are the most prevalent chronic conditions globally and often co-occur (termed cardiometabolic multimorbidity), driving mortality [1]. Recent evidence highlights that pre-existing cardiometabolic comorbidities and poorly controlled cardiovascular risk factors are associated with adverse clinical outcomes among COVID-19 patients [2]. Cardiometabolic diseases are also significantly more prevalent in COVID-19 patients than other chronic conditions such as cancer or chronic obstructive pulmonary disease (10-23% vs 2-3%) [3]. Individuals with cardiometabolic disease are also at significantly elevated risk for COVID-19 related outcomes, including hospitalisation and death [4]. Additionally, individuals from ethnic minority backgrounds, particularly those from Black and South Asian populations, are at significantly greater risk of both COVID-19 infection and death, even after accounting for relevant socioeconomic factors which is partly driven by the increased cardiometabolic disease risk seen in these populations [5]. Furthermore, obesity and central adiposity, which are disproportionately common amongst Black and South Asian populations respectively [6], drive adverse COVID-19 outcomes and mortality [7]. Consequentially, individuals from Black and South Asian backgrounds with pre-existing cardiometabolic disease and/or obesity represent an extremely vulnerable population with regards to adverse COVID-19-related outcomes. Furthermore, COVID-19 has had a profoundly negative impact on mental health due to elevated stress, depression and social isolation [8], which may also disproportionately affect those from ethnic minority communities [9] and worsen multimor bidity-related health outcomes in the long-term [10].

Ongoing management of cardiometabolic disease including sufficient risk factor control and mental health support is vital to minimise this risk, particularly in ethnic minority groups. However, the COVID-19 pandemic has resulted in a dramatic shift of attention and resources away from chronic disease management, and has caused a huge disruption in routine NHS care for patients with chronic disease. Additionally, risk factor control may have been directly affected during COVID-19-related restrictions due to factors

such worsened medication adherence [11], impacted lifestyle behaviours including reduced physical activity, increased sedentary time and altered nutritional habits [12], and disrupted sleep [13]. This is particularly pertinent for ethnic minority populations, who typically already display reduced physical activity levels [14]. Previous research from national disaster-events has highlighted that poor disease risk factor control during the disaster is associated with significantly worse long-term health outcomes [15]. Socioeconomic deprivation, which has been profoundly negatively impacted by COVID-related restrictions, is also more common in ethnic minority populations, driving healthcare access inequalities and increasing COVID-related mortality [16]. New pathways for prospective cardiometabolic risk factor control are therefore urgently required, not only for minimising cardiovascular diseaseassociated risk related to a possible second spike in COVID-19 infection rates [2], but also for preventing adverse long-term outcomes associated with poor risk factor control during the COVID/post-COVID-era [15].

As such, there is a vital need to implement novel methods of supporting risk factor control and mental health for those with cardiometabolic multimorbidity in the COVID/post-COVID era, particularly for ethnic minority populations who display extremely high risk. Disease self-management (DSM) whereby the person is empowered to manage all or parts of their routine care in combination with shared decision-making supported by an integrated multidisciplinary care team, provides a promising avenue to address this need. DSM has demonstrated clinical and costeffectiveness in chronic disease [17], and can be implemented in a COVID-resilient manner using virtual platforms and support [18]. Typically, UK health-promoting services or interventions are not translated for ethnic minority populations, which strengthens pre-existing health inequalities. In order to be effective, DSM education programmes and support must be not only translated appropriately for UK ethnic minority populations, but also culturallyadapted from the ground-up to ensure that they are suitable in the cultural, social and religious context of the target population.

The recent evidence concerning excess COVID-related risk in those both with pre-existing cardiometabolic conditions and those from UK ethnic minority communities has driven a large amount of research to be undertaken concerning possible underlying causes, factors associated with increased infection and adverse outcome risk, and impact on mental health. However, COVID-19 has resulted in a significant disruption in routine chronic disease care, particularly diabetes and cardiovascular disease, due to resource shift towards COVID-19 prevention or treatment, the difficulty in maintaining routine care with adequate social distancing, and impacted mental health [19]. Therefore, investigating new approaches to delivering routine chronic disease management in a COVID-resilient manner is crucial for the prevention of a severe detriment to future chronic disease outcomes [20]. However, to our knowledge there are no studies to date concerning specific COVID-resilient adaptation of DSM programmes to improve long-term physical and mental health outcomes. There is therefore an urgent need for such data, and exemplars from both within the UK and around the world upon which to base future models of care, particularly for minority ethnic health groups. Furthermore, a general reduction in the maintenance of adequate cardiometabolic risk factor control due to COVID-19 would result in significantly increased healthcare utilisation and costs, further straining already financially-pressured healthcare systems.

We therefore recommend the following care priorities with regards to the management of the UK cardiometabolic disease population:

- 1. Stratify patients based on adverse long-term and COVID-related outcome risk in order to prioritise the review of the most at-risk patients during the COVID/post-COVID era.
- 2. Incorporate culturally-tailored COVID-resilient DSM programmes and shared decision-making in order to support chronic disease management (e.g. medication optimisation and adherence, nutritional habits, physical activity levels) whilst minimising healthcare burden.
- 3. Ensure patients with cardiometabolic disease are aware of and understand potential alterations in treatment and lifestyle recommendations in the case of COVID-19 infection, such as potential medication alterations (e.g. insulin or ACE-inhibitors) and the need to maintain adequate hydration.
- 4. Support the mental health of those with cardiometabolic disease, as poor mental health can profoundly impact other disease management and lifestyle factors, for instance medication adherence and physical activity.
- Ensure the completion of regular patient reviews (virtually or otherwise) to support patients to manage their own conditions, identify issues as they arise and foster long-term behaviour change.

These steps are vital, particularly in ethnic minority populations, in order to minimise the potential for excess deaths related to COVID-19 and future long-term adverse health outcomes, and further UK healthcare system strain.

Declaration of competing interest

Professor Khunti is the national lead for the NIHR ARC multimorbidity theme. Professor Davies reports grants from Novo Nordisk, non-financial support from the NIHR Leicester Biomedical Research Centre, during the conduct of the study; personal fees from Novo Nordisk, personal fees from Sanofi-Aventis, personal fees from Boehringer Ingelheim, personal fees from AstraZeneca, personal fees from Janssen, personal fees from Servier, personal fees from Gilead Sciences Ltd, personal fees from NAPP, personal fees from Mitsubishi Tanabe Pharma Corporation, personal fees from Takeda Pharmaceuticals International Inc., grants from Novo Nordisk, grants from Sanofi-Aventis, grants from Lilly, grants from Boehringer Ingelheim, grants from Astrazeneca, grants from Janssen, outside the submitted work. No other conflicts of interest are reported.

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Patrick J. Highton^{*}, Michelle Hadjiconstantinou Diabetes Research Centre, University of Leicester, Leicester General Hospital, Leicester, LE5 4PW, UK

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* Corresponding author. Diabetes Research Centre, University of Leicester, Leicester General Hospital, Leicester, LE5 4PW, UK. *E-mail address:* ph204@le.ac.uk (P.J. Highton).

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P.J. Highton, M. Hadjiconstantinou, S. Schreder et al.

Sally Schreder

Hospital, Leicester, LE5 4PW, UK

Leicester Diabetes Centre, University Hospitals of Leicester NHS Trust, Leicester General Hospital, Leicester, LE5 4PW, UK

Sam Seidu, Melanie Davies, Kamlesh Khunti Diabetes Research Centre, University of Leicester, Leicester General