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Discrimination and health outcomes in England's black communities amid the cost-of-living crisis: evaluating the role of inflation and Bank Rates

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ABSTRACT

This study utilised longitudinal data from Black History Month events in London from 2021 to 2023. Novel findings revealed that increased inflation and Bank Rates, related to the cost-of-living crisis, were associated with greater discrimination and deteriorations in both general and mental health for Black individuals. Moreover, it was found that during the cost-of-living crisis period, i.e. 2022–2023, discrimination was more adversely related to general and mental health deterioration compared to the period before the cost-of-living crisis, i.e. 2021. In addition, women, non-native individuals, non-heterosexual individuals, the unemployed, economically inactive individuals, those with lower educational attainment, and older individuals experienced higher levels of discrimination and reduced general and mental health compared to reference groups. The findings of the study contribute to the literature by demonstrating the intertwined associations of macroeconomic deteriorations and discrimination with the health of the Black community, and its subgroup differences, providing a basis for targeted policies.

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KEYWORDS Black community; health; mental health; discrimination; cost-of-living crisis; inflation rate

Introduction

The current period in the UK presents a unique and critical context for examining issues related to discrimination and health outcomes for individuals with a Black ethnic background. The uncertainty and economic shifts due to the UK's departure from the European Union in 2020 have affected

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immigration laws, attitudes, and socioeconomic status, exacerbating xenophobia, racism, discrimination, and exclusion for Black individuals (Abranches et al. 2020; Benson and Lewis 2019). Moreover, the COVID-19 pandemic has disproportionately affected Black individuals, associating with increased racism and deteriorating economic and health outcomes (Jaspal and Lopes 2021; Otu et al. 2020). Additionally, the ongoing cost-of-living crisis, which became prominent between 2022 and 2023, has adversely affected the Black community, linked to economic deterioration¹ and heightened health inequalities (Brown, Wilson, and Begum 2023; Meadows et al. 2024; Saleem and Zaidi 2023).

A 2023 nationwide survey involving more than 10,000 Black individuals across the UK found that racism continues to be a significant impediment in every sector of the economy (Black British Voices Project 2023). The study revealed that 93% of research participants felt that Black individuals in Britain receive unfair treatment from healthcare professionals. Furthermore, 91% of respondents reported experiencing workplace discrimination, while 41% identified racism as the primary obstacle to the educational attainment of young Black people (Black British Voices Project 2023). In 2023, the United Nations reported that economic austerity measures in the UK over the last decade have exacerbated racism and racial discrimination experienced by Black individuals, leading to adverse consequences for their fundamental rights (United Nations 2023). At the same time, denial of racism in the UK manifests through institutional neglect and the invalidation of personal experiences, undermining efforts towards achieving true racial equity (St Louis 2021).

The present study, utilising longitudinal data collected in 2021, 2022, and 2023 during London, England's Black History Month, aims to examine six thematic areas: (a) the determinants of discrimination within the Black community; (b) the determinants of general and mental health within the Black community; (c) the relationship between discrimination and general and mental health within the Black community; (d) the relationship between the cost-of-living crisis and discrimination within the Black community; (e) the relationship between the cost-of-living crisis and general and mental health within the Black community; and (f) a comparison of the magnitude of the relationship between discrimination and general and mental health within the Black community, before and during the cost-of-living crisis.

This study makes two contributions to the existing literature. Firstly, it takes place before and during the cost-of-living crisis. Although comprehensive research on the relationships between macroeconomic deteriorations due to the cost-of-living crisis, discrimination against Black individuals, and general and mental health outcomes could provide an informative understanding of health inequalities, a relevant study is currently missing from the literature. The present study aims to address this research gap. In previous periods of macroeconomic deterioration, such as the Great Recession of 2008-2009, there was an increase in the level of discrimination against Black individuals

(Anderson, Crost, and Rees 2020; Johnston and Lordan 2014; Krosch, Tyler, and Amodio 2017; Redclift 2014). At the same time, discrimination was found to contribute to deteriorated general and mental health for Black individuals (Hackett et al. 2020; Maletta et al. 2023; Wallace, Nazroo, and Bécaries 2016). In the UK, the limited available evidence indicates that the cost-of-living crisis, as manifested by increased inflation and Bank Rates, has disproportionately impacted Black communities, who are already overrepresented among low-income households and those experiencing deep poverty (Edmiston, Begum, and Kataria 2022). The cost-of-living crisis can exacerbate both existing financial insecurity and deteriorating health outcomes for Black individuals (Brown, Wilson, and Begum 2023; Meadows et al. 2024; Saleem and Zaidi 2023). This makes it essential to understand which factors, including macroeconomic deteriorations and discrimination, might deteriorate health outcomes. Failure to capture and evaluate present phenomena might result in growing discrimination, economic inequality, and health inequalities. This knowledge is crucial for developing targeted interventions and policies that can mitigate the adverse effects of the cost-of-living crisis on these communities.

Secondly, the study utilises a rich dataset that enables well-informed evaluations across different subgroups within the Black community. The study examines the determinants of discrimination, general health, and mental health within the Black community, including factors such as nationality, gender, sexual orientation, and employment. In the UK literature, there is a gap in studies addressing these determinants within the Black community (Devonport et al. 2023; Hatch et al. 2016). The Black community is not homogeneous; it encompasses a wide range of demographics and socio-economic backgrounds (Halvorsrud et al. 2019; Raleigh 2023). For instance, Black women and men may face different levels of discrimination due to factors such as gender bias and gender roles (McManus et al. 2016; Winchester 2021). Similarly, non-heterosexual individuals within the Black community may encounter compounded discrimination related to both racial and sexual orientation stigma (Meads 2020). Studying within-group differences among Black individuals is essential for acknowledging and addressing the full spectrum of experiences and challenges faced by these populations (Drydakis 2024a). This approach aids in refining scientific inquiry and subsequently enhancing the effectiveness of interventions to reduce health inequalities (Drydakis 2024a).

The study's findings reveal that minoritised subgroups within the Black community experience higher levels of discrimination and poorer health outcomes compared to their reference groups. Moreover, increased inflation and Bank Rates are linked to greater discrimination and deteriorations in both general and mental health among Black individuals. Additionally, during the 2022–2023 cost-of-living crisis, discrimination is more strongly associated with worsening health outcomes compared to the period before the crisis in 2021. The ongoing cost-of-living crisis in the UK, coupled with

the study's findings, provides a crucial context for re-examining Group Conflict Theory (Sherif 1967). In times of social and economic upheaval, intergroup tensions often intensify, particularly when dominant groups perceive their access to resources to be under threat (Sherif 1967). Such perceptions can lead to heightened levels of prejudice and discrimination against minoritised groups, as dominant groups may scapegoat these communities or attempt to safeguard their own interests in the face of the perceived financial instability of minoritised populations, and a constricted job market (Drydakis 2022a). By prioritising the reduction of discrimination, especially in times of crisis, the study underscores the need to work towards fostering a more equitable society and improving the well-being of all citizens, with particular emphasis on the most vulnerable groups (Drydakis 2022a; 2024a).

The rest of the study is structured as follows: Section 2 presents the theoretical background of the study. Section 3 details the data gathering process and the study's variables. Section 4 offers the descriptive statistics. Section 5 presents the regression outcomes. Finally, Section 6 offers a discussion.

Theoretical considerations

Racism involves the belief that certain demographic groups are superior or inferior, often leading to discriminatory attitudes and behaviours (Williams, Lawrence, and Davis 2019). Discrimination is defined as the differential treatment of an individual based on a socially ascribed characteristic (Hackett et al. 2020). Racism essentially creates and maintains policies and systems that enable majoritised groups to unfairly distribute opportunities and resources away from minoritised individuals, whom they perceive as inferior (Williams, Lawrence, and Davis 2019).

Western societies have demonstrated discrimination against Black individuals (Black British Voices Project 2023; United Nations 2023). Racism is rooted in an organised system that separates racial groups into ranked categories, by which members of lower-ranked groups are devalued, disempowered, and generally regarded as inferior (Hall 2006; Versey and Curtin 2016; Williams, Lawrence, and Davis 2019). Black individuals who also identify as women, non-native, non-heterosexual, older, less educated, and economically disadvantaged may experience compounded forms of discrimination, rendering them more vulnerable than their counterparts in relevant comparison categories (Drydakis, Paraskevopoulou, and Bozani 2023; Versey and Curtin 2016). This feature means that the effects of discrimination might be additive or even multiplicative, leading to a more profound impact on these individuals' lives (Drydakis, Paraskevopoulou, and Bozani 2023).

In the UK, the current socio-political climate has influenced these dynamics. For instance, the country's departure from the European Union has been linked to a rise in xenophobic sentiments, which have

disproportionately affected non-native Black individuals (Abranches et al. 2020; Benson and Lewis 2019). Moreover, the combined effect of racism, sexism, and ageism has been found to adversely affect individuals' realities in the UK (Black British Voices Project 2023; Drydakis et al. 2018; Drydakis, Paraskevopoulou, and Bozani 2023; United Nations 2023). Recent UK studies have indicated that older Black British women experience the highest level of discrimination in the labour market compared to younger and older Black British men, as well as younger and older White British men and women (Drydakis et al. 2018; Drydakis, Paraskevopoulou, and Bozani 2023), supporting the multiplicative effect of discrimination based on subgroup characteristics within Black communities.

Reflecting on these patterns, the study suggests the following hypothesis:

Hypothesis 1: Among Black individuals, those with minoritised demographic characteristics experience higher levels of discrimination compared to those with majoritised demographic characteristics.

Social epidemiology indicates that social status groups, such as minoritised ethnicity, gender, and sexual orientation, may play a role in increasing the incidence of adverse general and mental health in minoritised subgroups within the Black community, while having a lesser impact on majoritised groups (Braveman and Gottlieb 2014; Hatch et al. 2016; MacGuire 2020; Manandhar et al. 2018).

In the UK, it is well-documented that Black individuals experience lower incomes compared to White British individuals (Office for National Statistics 2020). Considering that these income inequalities can be linked to vulnerability, it might not be surprising that in the UK, there are higher rates of infant and maternal mortality, cardiovascular diseases, and adverse mental health in Black communities compared to White communities (Devonport et al. 2023; Halvorsrud et al. 2019; Office for National Statistics 2023; Raleigh 2023; Williams, Lawrence, and Davis 2019).

Moreover, studies in the UK have shown that women experience poorer general and mental health outcomes than men (McManus et al. 2016; Winchester 2021). It is suggested that sexism and discrimination introduce critical barriers to women's education and employment, reducing their economic resources and adversely affecting their general and mental health (Manandhar et al. 2018; McManus et al. 2016). Additionally, in the UK, vulnerable non-native populations experience deteriorated general health outcomes compared to native populations (Giuntella et al. 2018). The general and mental health of non-natives is influenced by a range of social determinants, including factors that affect the migration process, reasons for migration, mode of travel, length of stay, language skills, legal status, and lived experiences in the host country (Giannoni, Franzini, and Masiero 2016). These lived experiences encompass levels of integration, encounters with racism,

financial resources, and access to healthcare (Giannoni, Franzini, and Masiero 2016).

Furthermore, there are significant inequalities in general and mental health among individuals based on their sexual orientation (Meads 2020). Research in the UK has shown worse general and mental health, as well as poorer healthcare experiences for sexual minorities (Meads 2020). Non-heterosexual individuals, due to experiences of homophobia and discrimination, encounter higher rates of unemployment, poverty, and financial hardships, which have been found to be correlated with adverse general and mental health outcomes (Drydak 2022b). Additionally, evidence from the UK indicates that growing older significantly increases the risk of experiencing ageism and discrimination, which are often associated with economic vulnerability and health inequalities (Jackson, Hackett, and Steptoe 2019).

In light of the presented arguments, it is suggested that:

Hypothesis 2: Among Black individuals, those with minoritised demographic characteristics experience lower levels of general and mental health compared to those with majoritised demographic characteristics.

Studies in the UK have explored the relationship between discrimination against individuals from ethnic minoritised backgrounds, including Black communities, and its association with their general and mental health outcomes (Devonport et al. 2023; Hackett et al. 2020; Hatch et al. 2016; Maletta et al. 2023; Wallace, Nazroo, and Bécares 2016). These studies consistently demonstrate a link between discrimination and adverse general and mental health outcomes (Hackett et al. 2020; Maletta et al. 2023; Wallace, Nazroo, and Bécares 2016).

Historical and ongoing discrimination in healthcare, housing, employment, and lending practices, as examples of structural racism, can limit access to quality healthcare, nutritious food, and safe housing (Pascoe and Smart Richman 2009). This can be associated with poorer health outcomes, including higher rates of chronic diseases such as diabetes and heart disease (Devonport et al. 2023; Hackett et al. 2020; Pascoe and Smart Richman 2009). Moreover, cultural racism is found to be associated with chronic stress, anxiety, low self-esteem, and depression due to constant negative portrayals and stereotypes (Black British Voices Project 2023; Hall 2006; Pascoe and Smart Richman 2009). This stress can manifest in physical health problems such as hypertension, cardiovascular diseases, and a weakened immune response (Devonport et al. 2023; Hackett et al. 2020; Pascoe and Smart Richman 2009).

In addition, institutional racism, demonstrated through discrimination in access to healthcare services and the quality of care received, as well as racial profiling by law enforcement, has been found to be linked to the disproportionate targeting and incarceration of Black individuals (Black British Voices Project 2023; Pascoe and Smart Richman 2009). This is related to

physical harm, stress-related illnesses, and post-traumatic stress disorder (Black British Voices Project 2023; Devonport et al. 2023; Hackett et al. 2020; Pascoe and Smart Richman 2009). Additionally, physical violence and verbal harassment, as examples of interpersonal racism, can be associated with physical injuries and chronic stress (Amaro et al. 2021; Devonport et al. 2023). Furthermore, internalised racism can be linked to behaviours that are detrimental to health, such as neglecting medical care or adopting unhealthy coping mechanisms (Amaro et al. 2021; Devonport et al. 2023).

The study examining these patterns suggests that:

Hypothesis 3: Discrimination is linked to worsened general and mental health among Black individuals.

Macroeconomic downturns, such as rising inflation and Bank Rates, can lead to economic instability (Bank of England 2024). During such periods, competition for limited resources, such as jobs, housing, and social services, can intensify (Anderson, Crost, and Rees 2020; Krosch, Tyler, and Amodio 2017). Group Conflict Theory posits that intergroup tensions arise when a dominant group perceives a threat to its status, resources, or well-being (Sherif 1967). This perception often results in prejudice and discrimination against minoritised groups (Sherif 1967). In the UK, during the Great Recession, such competition was found to amplify existing prejudices, resulting in increased discrimination against those perceived as “others”, including Black individuals (Johnston and Lordan 2014; Redclift 2014).

Based on previous experiences of macroeconomic downturns, the cost-of-living crisis in the UK, which began in 2022 (Bank of England 2024), due to rising energy prices, could exacerbate racism against minoritised groups (Anderson, Crost, and Rees 2020; Johnston and Lordan 2014; Krosch, Tyler, and Amodio 2017; Redclift 2014). In the UK, the inflation rate increased by approximately 4.34 percentage points between 2021 and 2023 (from 2.49% to 6.83%). As the inflation rate rises, so do rental housing costs (Bank of England 2024). Black individuals, who are statistically more likely to be in lower-income brackets (Brown, Wilson, and Begum 2023; Edmiston, Begum, and Kataria 2022), may find it harder to afford housing. Landlords and property managers might discriminate against Black tenants, perceiving them as higher financial risks during adverse economic periods, leading to increased housing denials.

Similarly, increased Bank Rates make loans and credit more expensive and harder to obtain (Brown, Wilson, and Begum 2023; Edmiston, Begum, and Kataria 2022). The Bank of England’s base rate increased by approximately 4.7 percentage points between 2021 and 2023 (from 0.11% to 4.81%). Banks may disproportionately deny Black individuals access to financial services, assuming higher default risks based on racial stereotypes. Moreover, employers, influenced by stereotypes and biases, may view Black applicants

as less desirable in a strained job market (Bank of England 2024). In the UK, the unemployment rate increased by approximately 0.7 percentage points between 2022 and 2024 (from 3.7% to 4.4%). Economic uncertainty can result in increased discrimination in hiring and employment practices (Anderson, Crost, and Rees 2020; Krosch, Tyler, and Amodio 2017).

Macroeconomic deteriorations have been found to be associated with heightened social stress and the search for scapegoats (Anderson, Crost, and Rees 2020; Drydakakis 2022a; Johnston and Lordan 2014; Krosch, Tyler, and Amodio 2017; Redclift 2014). During the Great Recession, patterns show that Black communities were frequently unfairly blamed for broader societal issues, including crime rates and the use of social protection benefits, provoking racist and xenophobic discourses (Anderson, Crost, and Rees 2020; Johnston and Lordan 2014; Krosch, Tyler, and Amodio 2017; Redclift 2014). Moreover, economic pressures were found to be associated with the breakdown of relationships with neighbours, friends, and colleagues, particularly when non-nationals were unfairly blamed for the deterioration of the economy (Anderson, Crost, and Rees 2020; Johnston and Lordan 2014; Krosch, Tyler, and Amodio 2017). At the same time, Black individuals were found to face more frequent threats and physical attacks as societal frustrations were misdirected towards them (Anderson, Crost, and Rees 2020).

Experiences from the Great Recession indicated that macroeconomic deteriorations were associated with declining fertility and self-rated health, as well as increasing morbidity, psychological distress, and suicides (Margerison-Zilko et al. 2016). Additionally, health impacts were stronger among racial and ethnic minorities (Margerison-Zilko et al. 2016). In the UK, research has indicated that the cost-of-living crisis can further worsen health outcomes for people with low incomes, including Black individuals (Brown, Wilson, and Begum 2023; Meadows et al. 2024; Saleem and Zaidi 2023). From an inability to afford heating to the risk of malnourishment, the cost-of-living crisis can have adverse health consequences for vulnerable population groups (Brown, Wilson, and Begum 2023; Saleem and Zaidi 2023). Additionally, there is a risk of adverse mental health outcomes as a result of stress related to economic struggles in the household (Saleem and Zaidi 2023).

During the cost-of-living crisis, if exclusions due to increased instances of discrimination become more prevalent, this could be seen as an added layer of economic vulnerability, potentially linked to a more severe deterioration in both general and mental health. During periods of rising discrimination as a result of macroeconomic deteriorations (Anderson, Crost, and Rees 2020; Drydakakis 2022a; Krosch, Tyler, and Amodio 2017), Black individuals, who already face health inequalities (Brown, Wilson, and Begum 2023; Meadows et al. 2024; Saleem and Zaidi 2023), may find it even more challenging to secure an income, deal with their debt, and receive necessary medical attention, potentially experiencing a worsening of their overall health status (Brown,

Wilson, and Begum 2023; Hackett et al. 2020; Maletta et al. 2023; Saleem and Zaidi 2023). Moreover, if the chronic stress associated with discrimination increases during periods of macroeconomic deterioration, due to increasing exclusions, biases, and harassment, this can further deteriorate both their general and mental health (Devonport et al. 2023; Hackett et al. 2020).

Hence, for Black individuals who already experience lower income and deteriorated health, the combination of increased financial strain and discrimination due to the country's macroeconomic deteriorations can exacerbate the already negative relationship between discrimination and general and mental health.

The study reflecting on these patterns suggests that:

Hypothesis 4a: An increase in the cost-of-living, characterised by rising inflation rates and Bank Rates, is linked to a higher level of discrimination against Black individuals.

Hypothesis 4b: An increase in the cost-of-living, characterised by rising inflation rates and Bank Rates, is linked to worsened general and mental health among Black individuals.

Hypothesis 4c: During the cost-of-living crisis period, discrimination is more adversely related to general and mental health deterioration among Black individuals compared to the period before the crisis.

Data gathering and variables

Data gathering

In the UK, every October, Black History Month is celebrated. Black History Month is an annual observance originating in the US. It began as a way of remembering important individuals and events in the history of the African diaspora. Nowadays, Black History Month celebrates the social, economic, cultural, and political achievements of Black individuals throughout history. During Black History Month, a variety of events are organised, such as lectures, film screenings, round-table talks, workshops, and artistic and cultural exhibitions. These events are attended by thousands of individuals. They provide a unique opportunity for researchers to engage in face-to-face collaborations with a large number of Black individuals, enabling them to recruit participants for surveys, conduct interviews, distribute questionnaires, and collect data.

In 2021, information about Black History Month social events was identified through internet searches. In October 2021, the research team participated in relevant events in the city of London for a period of 10 days and distributed participation forms during these events. The organisers of the

events facilitated the process by allowing the distribution of the participation forms. At each event, the research team informed the public that a university research study was being conducted and provided brief insights into the project. It was mentioned that the aim of the study was to research health-related patterns among individuals belonging to Black communities aged 18–65. The research team invited Black individuals to consider participating in the survey.

The study followed the usual procedures for securing ethics approval and ensuring the anonymity of participants. In the participation forms, information about the research team's affiliation was provided. The scope of the project was explained, which was to collect longitudinal data on the lives of Black individuals. The participation forms kindly invited potential participants to provide an email address, so that an e-questionnaire could be forwarded to them for completing an e-survey. The participation forms also mentioned that those who completed the e-survey would be re-approached in the future for follow-up e-surveys. The first data gathering took place between October and December 2021, when an e-questionnaire was sent to the provided email addresses. Follow-up data collection occurred in 2022 and 2023, again between October and December. Participants who had provided information in the first wave (October–December 2021) were re-approached.

Variables

In the questionnaires, information on basic demographic characteristics was included, such as age, gender, sexual orientation, ethnicity, education, and employment status. The study utilised the 13-item Intersectional Major Discrimination index developed by Scheim and Bauer (2019). According to the developers (Scheim and Bauer 2019), the index is designed to capture discrimination based on minoritised characteristics. The index includes self-reflections related to refusal of healthcare provision, job dismissal, housing denial, discrimination in school settings, avoidance by others, and threats of physical attack. Each question in the index offers three response options: "never", "once" or "more than once". The index has a range of scores from 0 to 26, where higher values indicate a higher number of discriminatory incidents against minoritised individuals. The index has demonstrated strong construct validity and test-retest reliability (Scheim and Bauer 2019).

To assess general health and mental health status, the study utilised the SF-36 General Health dimension and the SF-36 Mental Health dimension. The SF-36 General Health dimension measures perceived health status through five items, including whether individuals believe they are "in good health", "get sick a little easier than other individuals", and "expect their health to get worse" (Ware, Kosinski, and Gandek 2004). Similarly, the SF-36

Mental Health dimension assesses perceived mental health status through five items, capturing whether individuals believe they “feel happy”, “are calm” and “experience peace” (Ware, Kosinski, and Gandek 2004). Both the health and mental health instruments were standardised to a T-score using the SF-36 scoring algorithms described by the developers (Ware, Kosinski, and Gandek 2004). The SF-36 General Health and the SF-36 Mental Health dimensions range from 0 to 100, with higher values indicating better-perceived general health and mental health status. Both instruments have been found to provide valid and reliable results in a plethora of international studies (Ware, Kosinski, and Gandek 2004).

Descriptive statistics

Table 1 presents the descriptive statistics for the study. In 2021, the sample consisted of 264 observations. In 2022, there were 235 observations in the sample, and in 2023, there were 223 observations. In relation to the macro-economic indicators, the inflation rate in 2021 was 2.49%, which increased to 7.9% in 2022 and then decreased to 6.83% in 2023. Additionally, the Bank of England’s rate in 2021 was 0.11%, rising to 1.58% in 2022 and further increasing to 4.81% in 2023. Consequently, between 2021 and 2023, there was a 4.34 percentage point increase in the inflation rate ($z = 2.3$; $p < 0.05$) and a 4.7 percentage point increase in the Bank of England’s rate ($z = 3.4$; $p < 0.01$).

Panel IV compiles the data, and it is observed that the mean age is 39.6 years, with 55.2% of the sample population being women, 8.4% identifying as non-heterosexual, and 32.8% as non-British. Furthermore, 30.0% have

Table 1. Descriptive statistics. Means and standard deviations.

	Panel I Year: 2021	Panel II Year: 2022	Panel III Year: 2023	Panel IV Total sample. Years: 2021–2023
Age (c.)	38.85 (12.03)	39.62 (12.09)	40.77 (12.04)	39.69 (12.06)
Women (%)	55.30 (0.49)	56.17 (0.49)	54.26 (0.49)	55.26 (0.49)
Non-native individuals (%)	32.19 (0.46)	32.34 (0.46)	34.08 (0.47)	32.82 (0.46)
Non-heterosexual individuals (%)	8.33 (0.27)	8.08 (0.27)	8.96 (0.28)	8.44 (0.27)
Higher or vocational education (%)	29.16 (0.45)	30.21 (0.46)	30.94 (0.46)	30.05 (0.45)
Employed individuals (%)	78.40 (0.41)	79.57 (0.40)	66.81 (0.47)	75.20 (0.43)
Unemployed individuals (%)	10.22 (0.30)	14.04 (0.34)	26.90 (0.44)	16.62 (0.37)
Economically inactive individuals (%)	11.36 (0.31)	6.38 (0.24)	6.27 (0.24)	8.17 (0.27)
General health (c.)	62.98 (15.17)	61.80 (14.53)	60.17 (13.09)	61.58 (14.48)
Mental health (c.)	67.67 (16.98)	66.34 (16.30)	63.85 (14.88)	65.90 (16.23)
Discrimination (c.)	8.09 (5.51)	8.31 (5.44)	8.32 (5.50)	8.27 (5.51)
Inflation rate (%)	2.49	7.90	6.83	5.74
Bank Rate (%)	0.11	1.58	4.81	2.16
Observations	264	235	223	722

Notes: (c.) Continuous variable.

either a higher or vocational education. Within the sample, 75.2% are employed, 16.6% are unemployed, and the remainder are economically inactive. Comparisons between 2021 and 2023 indicate that the level of employment was lower in 2023 than in 2021 (66.8% vs 78.4%, $z = 2.8$, $p < 0.01$).² Conversely, the level of unemployment was higher in 2023 than in 2021 (26.9% vs 10.2%, $z = 4.7$, $p < 0.01$).³ Additionally, the level of economically inactive individuals was lower in 2023 compared to 2021 (6.2% vs 11.3%, $z = 1.9$, $p < 0.10$).

Additionally, in Panel IV, discrimination has a mean value of 8.2 (out of 26), general health has a mean value of 61.5 (out of 100), and mental health has a mean value of 65.9 (out of 100). Comparisons between 2021 and 2023 indicate that the level of discrimination was higher in 2023 than in 2021 (mean value 8.3 vs 8.0, $t = 7.0$, $p < 0.01$). Additionally, general health and mental health statuses were lower in 2023 compared to 2021 (mean value 60.1 vs 62.9, $t = 7.9$, $p < 0.01$, and mean value 63.8 vs 67.6, $t = 10.3$, $p < 0.01$).

Table 2 presents information for each component of the discrimination index based on the pooled dataset. It provides both proportions and average measurements. It has been observed that the adverse experiences most frequently reported (i.e. more than once) by Black individuals include refusal of care provision (29.9%) and termination or being dismissed from a job, or being turned down for one (25.9%).

Table 3 presents a tabulated analysis based on the pooled dataset. Panel I presents an age-based evaluation. It is evident that older individuals, in comparison to their younger counterparts, experience higher levels of discrimination (mean value 10.0 vs 6.0; $t = 10.4$), as well as deteriorated general health (mean value 55.8 vs 67.7; $t = 13.3$) and mental health (mean value 58.5 vs 75.0; $t = 15.6$). Moreover, the findings indicate that women (Panel II), non-native individuals (Panel III), non-heterosexual individuals (Panel IV), individuals without higher or vocational education (Panel V), and unemployed or economically inactive individuals (Panel VI) experience higher levels of discrimination and show deterioration in their general and mental health compared to the relevant reference groups. All the differences are statistically significant at the 1% level.

Estimates

The determinants of discrimination

Table 4, Models I-III, presents the determinants of discrimination estimates. Pooled OLS, random effects, and fixed effects models assess whether the estimates hold in the event of the utilisation of alternative empirical specifications (Andreß, Golsch, and Schmidt 2013).

Model I presents pooled OLS estimates. It is found that women ($b = 1.181$, $p < 0.01$, marginal effects m.e. = 0.078), non-native individuals ($b = 2.874$, $p <$

Table 2. Descriptive statistics. Discrimination. Means, standard errors, and standard deviations.

"Because of who you are ... "	Never (%)	Once (%)	More than once (%)	Continuous variable (c.)
Has a health care provider ever refused you care?	22.57 [0.01]	47.50 [0.01]	29.91 [0.01]	1.07 (0.72)
Have you ever been fired or dismissed from a job, or been turned down for a job that you interviewed for?	21.60 [0.01]	52.49 [0.01]	25.90 [0.01]	1.04 (0.68)
Have you ever been evicted or denied housing?	80.33 [0.01]	10.66 [0.01]	9.00 [0.01]	0.28 (0.62)
Have you ever been unreasonably stopped and questioned, searched, or arrested by police or security?	18.14 [0.01]	64.12 [0.01]	17.72 [0.01]	0.99 (0.59)
Have you ever been unreasonably expelled or suspended from school?	83.93 [0.01]	8.72 [0.01]	7.34 [0.01]	0.23 (0.57)
Have you ever been unable to open a bank account, cash a cheque, or get a loan?	83.10 [0.01]	9.83 [0.01]	7.06 [0.01]	0.23 (0.56)
Have you ever had to move to another neighborhood, town, city, state, province or country?	80.60 [0.01]	12.18 [0.01]	7.20 [0.01]	0.26 (0.58)
Have you ever lost a close relationship?	18.69 [0.01]	56.92 [0.01]	24.37 [0.01]	1.05 (0.65)
Have you ever been repeatedly harassed at work or school, where you live, or when accessing services?	20.49 [0.01]	56.64 [0.01]	22.85 [0.01]	1.02 (0.65)
Have you ever been threatened with a physical or sexual attack?	24.93 [0.01]	49.44 [0.01]	25.62 [0.01]	1.00 (0.71)
Have you ever been physically attacked?	78.53 [0.01]	12.18 [0.01]	9.27 [0.01]	0.30 (0.63)
Have you ever been made to engage in sexual activity, or been touched in a sexual way, that you did not want?	73.54 [0.01]	14.81 [0.01]	11.63 [0.01]	0.38 (0.68)
Have you ever had someone take, damage, or vandalize your property?	73.82 [0.01]	16.34 [0.01]	9.83 [0.01]	0.36 (0.65)

Notes: The data set covers the periods 2021, 2022 and 2023 ($n = 722$). Standard errors are given in square brackets. Standard deviations are given in parentheses.

0.01, $m.e. = 0.114$), non-heterosexual individuals ($b = 5.387$, $p < 0.01$, $m.e. = 0.055$), unemployed individuals ($b = 4.809$, $p < 0.01$, $m.e. = 0.096$), economically inactive individuals ($b = 4.980$, $p < 0.01$, $m.e. = 0.049$), and older individuals ($b = 2.675$, $p < 0.01$, $m.e. = 0.049$) are experiencing higher levels of discrimination compared to the relevant reference categories. On the other hand, those with higher or vocational education ($b = -0.790$, $p < 0.01$, $m.e. = -0.028$) experience lower levels of discrimination compared to those without such education. The estimated outcomes indicate that Hypothesis 1 is supported.

Model II presents the random effects estimates. The new estimates continue to indicate that women ($b = 1.710$, $p < 0.01$, $m.e. = 0.113$), non-native individuals ($b = 4.881$, $p < 0.01$, $m.e. = 0.191$), non-heterosexual individuals ($b = 7.571$, $p < 0.01$, $m.e. = 0.076$), and older individuals ($b = 0.175$, $p < 0.01$ or $m.e. = 0.011$) are experiencing higher levels of discrimination compared to the relevant reference categories. Similarly, the estimated patterns suggest that Hypothesis 1 is supported.

Model III presents the fixed effects estimates, which cannot account for time-invariant variables. No estimate was found to be statistically significant.

Table 3. Descriptive statistics. Tabulation analysis. Discrimination, General and Mental Health. Means and standard deviations.

	Observations	Discrimination	General Health	Mental Health
Panel I: Age				
Individuals with an age lower than the average age in the sample ($\bar{x} < 39$)	322	6.04 (6.40)	67.77 (15.38)	75.0 (16.54)
Individuals with an age higher than the average age in the sample ($\bar{x} > 40$)	400	10.06 (3.85)	55.8 (10.64)	58.58 (11.63)
t-test		$t = 10.41^{***}$	$t = 13.35^{***}$	$t = 15.62^{***}$
Panel II: Gender				
Men	323	6.83 (4.85)	67.08 (13.52)	72.13 (14.51)
Women	399	9.43 (5.75)	57.13 (13.09)	60.86 (15.80)
t-test		$t = 17.97^{***}$	$t = 9.77^{***}$	$t = 9.87^{***}$
Panel III: Nationality				
Native individuals	485	6.12 (4.38)	66.92 (13.29)	72.33 (14.25)
Non-native individuals	237	12.66 (4.98)	50.65 (9.98)	52.74 (11.39)
t-test		$t = 17.97^{***}$	$t = 16.68^{***}$	$t = 18.47^{***}$
Panel IV: Sexual orientation				
Heterosexual individuals	661	7.46 (4.97)	63.32 (13.81)	67.87 (15.45)
Non-heterosexual individuals	61	17.06 (2.85)	42.70 (5.12)	44.59 (5.83)
t-test		$t = 14.84^{***}$	$t = 11.58^{***}$	$t = 11.68^{***}$
Panel V: Higher or vocational education				
Individuals with higher or vocational education	217	5.45 (3.05)	68.50 (10.72)	74.48 (11.88)
Individuals without higher or vocational education	505	9.48 (5.89)	58.61 (14.87)	62.21 (16.46)
t-test		$t = 9.53^{***}$	$t = 8.85^{***}$	$t = 9.92^{***}$
Panel VI: Employment status				
Employed individuals	543	6.30 (5.14)	66.01 (12.92)	71.26 (14.07)
Unemployed or economically inactive individuals	179	14.24 (4.02)	48.15 (10.01)	49.65 (10.55)
t-test		$t = 21.25^{***}$	$t = 16.89^{***}$	$t = 18.86^{***}$

Notes: The data set covers the periods 2021, 2022 and 2023. (***) Statistically significant at the 1% level.

The Breusch and Pagan Lagrangian multiplier test indicates that the random effects model might better fit the data than the pooled OLS model (chi-squared = 452.84, $p < 0.01$). In addition, the Hausman test finds that the fixed effects model better fits the data than the random effects model (chi-squared = 20.92, $p < 0.01$).

The determinants of general health

In Table 4, Models IV to VI show the determinants of general health. Model IV presents pooled OLS estimates. It is found that women ($b = -6.378$, $p < 0.01$, m.e. = -0.057), non-native individuals ($b = -6.230$, $p < 0.01$, m.e. = -0.033), non-heterosexual individuals ($b = -11.919$, $p < 0.01$, m.e. = -0.016), unemployed individuals ($b = -9.539$, $p < 0.01$, m.e. = -0.025), economically inactive individuals ($b = -11.373$, $p < 0.01$, m.e. = -0.015), and older individuals ($b = -9.647$, $p < 0.01$, m.e. = -0.086) experience lower levels of general health compared to the relevant reference categories. Furthermore, the analysis

Table 4. Estimates. The determinants of discrimination, general health and mental health.

	Model I. Pooled OLS. Discrimination	Model II. Random effects. Discrimination	Model III. Fixed effects. Discrimination	Model IV. Pooled OLS. General Health	Model V. Random effects. General Health	Model VI. Fixed effects. General Health	Model VII. Pooled OLS. Mental Health	Model VIII. Random effects. Mental Health	Model IX. Fixed effects. Mental Health
Age	2.675 (0.263)***	0.175 (0.103)***	0.039 (0.094)	-9.647 (0.723)***	-4.988 (0.820)***	-0.741 (1.030)	-12.361 (0.712)***	-8.583 (0.834)***	-4.199 (1.092)***
Women	1.181 (0.259)***	1.710 (0.447)***	-	-6.378 (0.713)***	-7.290 (1.183)***	-	-6.789 (0.701)***	-7.649 (1.131)***	-
Non-native individuals	2.874 (0.306)***	4.881 (0.492)***	-	-6.230 (0.844)***	-9.323 (1.341)***	-	-7.518 (0.831)***	-10.384 (1.287)***	-
Non-heterosexual individuals	5.387 (0.494)***	7.571 (0.804)***	-	-11.919 (1.360)***	-15.453 (2.160)***	-	-12.334 (1.338)***	-16.036 (2.070)***	-
Higher or vocational education	-0.790 (0.290)***	-0.324 (0.222)	0.001 (0.220)	2.043 (0.798)**	1.956 (1.173)*	-3.333 (2.409)	2.966 (0.785)***	2.993 (1.147)***	-5.333 (2.552)**
Unemployed individuals (Λ)	4.809 (0.370)***	0.089 (0.065)	0.040 (0.058)	-9.539 (1.020)***	-2.560 (0.647)***	-1.469 (0.641)**	-12.532 (1.004)***	-4.545 (0.686)***	-2.830 (0.679)***
Economically inactive individuals (Λ)	4.980 (0.487)***	0.044 (0.114)	-0.040 (0.101)	-11.373 (1.340)***	-2.850 (1.063)***	-0.669 (1.115)	-13.014 (1.320)***	-5.013 (1.114)***	-2.168 (1.181)*
F	180.19	-	0.30	154.47	-	2.06	230.94	-	10.48
Prob > F	0.000	-	0.880	0.000	-	0.084	0.000	-	0.000
R-squared	0.638	-	0.136	0.602	-	0.001	0.693	-	0.076
Wald χ ²	-	310.13	-	-	341.87	-	-	592.09	-
Prop > χ ²	-	0.000	-	-	0.000	-	-	0.000	-
R-squared	-	0.471	-	-	0.540	-	-	0.649	-
Breusch and Pagan Lagrangian multiplier test	-	452.84; p = 0.000	-	-	378.00; p = 0.000	-	-	415.49; p = 0.000	-
Hausman test	-	20.92; p = 0.001	-	-	77.66; p = 0.000	-	-	36.88; p = 0.000	-
Observations	722	722	722	722	722	722	722	722	722

Notes: The data set covers the periods 2021, 2022 and 2023. (Λ) The reference category is employed individuals. The fixed effects models do not control for time invariant information. Standard errors are in parentheses. (***) Statistically significant at the 1%. (***) Statistically significant at the 5%. (*) Statistically significant at the 10%.

indicates that individuals with higher or vocational education ($b = 2.043$, $p < 0.05$, $m.e. = 0.009$) experience higher levels of general health compared to those without such education. Hence, Hypothesis 2 regarding general health is supported.

Moreover, Model V presents random effects estimates. Similar to Model IV, it is found that women ($b = -7.290$, $p < 0.01$, $m.e. = -0.065$), non-native individuals ($b = -9.323$, $p < 0.01$, $m.e. = -0.049$), non-heterosexual individuals ($b = -15.453$, $p < 0.01$, $m.e. = -0.021$), unemployed individuals ($b = -2.560$, $p < 0.01$, $m.e. = -0.006$), economically inactive individuals ($b = -2.850$, $p < 0.01$, $m.e. = -0.003$), and older individuals ($b = -4.988$, $p < 0.01$, $m.e. = -0.045$) experience lower levels of general health compared to the relevant reference categories. Moreover, it was found that individuals with higher or vocational education ($b = 1.956$, $p < 0.10$, $m.e. = 0.009$) experience higher levels of general health compared to those without such education.

Model VI presents fixed effects estimates. It is found that unemployed individuals ($b = -1.469$, $p < 0.05$, $m.e. = -0.003$) experience lower levels of general health compared to younger individuals. The Breusch and Pagan Lagrangian multiplier test finds that the random effects model might better fit the data than the pooled OLS model ($\chi^2 = 378.0$, $p < 0.01$). The Hausman test indicates that the fixed effects model might better fit the data than the random effects model ($\chi^2 = 77.66$, $p < 0.01$).

The determinants of mental health

In Table 4, Models VII to IX present the determinants of mental health. Model VII presents pooled OLS estimates. The estimates indicate that women ($b = -6.789$, $p < 0.01$, $m.e. = -0.056$), non-native individuals ($b = -7.518$, $p < 0.01$, $m.e. = -0.037$), non-heterosexual individuals ($b = -12.334$, $p < 0.01$, $m.e. = -0.015$), unemployed individuals ($b = -12.532$, $p < 0.01$, $m.e. = -0.031$), economically inactive individuals ($b = -13.014$, $p < 0.01$, $m.e. = -0.016$), and older individuals ($b = -12.361$, $p < 0.01$, $m.e. = -0.016$) experience lower levels of mental health compared to the relevant reference categories. Furthermore, the analysis indicates that individuals with higher or vocational education ($b = 2.966$, $p < 0.01$, $m.e. = 0.013$) experience higher levels of mental health compared to those without such education. Hypothesis 2 regarding mental health is supported.

In addition, Model VIII presents random effects estimates. It is found that women ($b = -7.649$, $p < 0.01$, $m.e. = -0.064$), non-native individuals ($b = -10.384$, $p < 0.01$, $m.e. = -0.051$), non-heterosexual individuals ($b = -16.036$, $p < 0.01$, $m.e. = -0.020$), unemployed individuals ($b = -4.545$, $p < 0.01$, $m.e. = -0.011$), economically inactive individuals ($b = -5.013$, $p < 0.01$, $m.e. = -0.006$), and older individuals ($b = -8.583$, $p < 0.01$, $m.e. = -0.072$) face lower levels of mental health compared to the relevant reference categories. On the other hand, it is found that individuals with higher or vocational education

($b = 2.993, p < 0.01, \text{m.e.} = 0.013$) face higher levels of mental health compared to those without such education.

Model IX presents fixed effects estimates, confirming that unemployed individuals ($b = -2.830, p < 0.01, \text{m.e.} = -0.007$), economically inactive individuals ($b = -2.168, p < 0.10, \text{m.e.} = -0.002$), and older individuals ($b = -4.199, p < 0.01, \text{m.e.} = -0.035$) face lower levels of mental health compared to the relevant reference categories. The Breusch and Pagan Lagrangian multiplier test shows that the random effects model might better fit the data than the pooled OLS model ($\chi^2 = 415.49, p < 0.01$). The Hausman test suggests that the fixed effects model might better fit the data than the random effects model ($\chi^2 = 36.88, p < 0.01$).

The relationship between discrimination and general and mental health

In Table 5, Models I to III present estimates on the relationship between discrimination and general health. Table 5 incorporates the same control variables as Table 4.

Model I presents pooled OLS estimates. It is found that discrimination is negatively associated with general health ($b = -1.970, p < 0.01, \text{m.e.} = -0.264$). Model II presents random effects estimates. It is found that discrimination is negatively associated with general health ($b = -2.032, p < 0.01, \text{m.e.} = -0.273$). Model III presents fixed effects estimates. The outcomes suggest that discrimination is negatively associated with general health ($b = -1.951, p < 0.01, \text{m.e.} = -0.262$). The Breusch and Pagan Lagrangian multiplier test

Table 5. Estimates. The relationship between discrimination and general health and mental health.

	Model I. Pooled OLS. General Health	Model II. Random effects. General Health	Model III. Fixed effects. General Health	Model IV. Pooled OLS. Mental Health	Model V. Random effects. Mental Health	Model VI. Fixed effects. Mental Health
Discrimination	-1.970 (0.071)***	-2.032 (0.096)***	-1.951 (0.505)***	-2.162 (0.061)***	-2.179 (0.078)***	-2.011 (0.536)***
F	370.44	-	4.68	713.81	-	11.44
Prob > F	0.000	-	0.000	0.000	-	0.000
R-squared	0.803	-	0.752	0.889	-	0.821
Wald χ^2	-	1283.38	-	-	2903.74	-
Prop > χ^2	-	0.000	-	-	0.000	-
R-squared	-	0.803	-	-	0.888	-
Breusch and Pagan Lagrangian multiplier test		325.80; $p = 0.000$			218.59; $p = 0.000$	
Hausman test		14.82; $p = 0.011$			12.14; $p = 0.033$	

Notes: The data set covers the periods 2021, 2022 and 2023. $N = 722$. Models I, II, IV, and V control for individuals' age, gender, nationality, sexual orientation, higher or vocational education, and employment status. Models III and VI control for individuals' age, higher or vocational education, and employment status. Standard errors are in parentheses. (***) Statistically significant at the 1%.

indicates that the random effects model might better fit the data than the pooled OLS model (chi-bar-squared = 325.80, $p < 0.01$). The Hausman test suggests that the fixed effects model might better fit the data than the random effects model (chi-squared = 14.82, $p < 0.05$).

To continue, Models IV to VI present estimates on the relationship between discrimination and mental health. Model IV presents pooled OLS estimates. It is found that discrimination is negatively associated with mental health ($b = -2.162$, $p < 0.01$, m.e. = -0.271). Model V presents random effects estimates. The estimates indicate that discrimination is negatively associated with mental health ($b = -2.179$, $p < 0.01$, m.e. = -0.273). Model VI presents fixed effects estimates. The outcomes suggest that discrimination is negatively associated with mental health ($b = -2.011$, $p < 0.01$, m.e. = -0.252). The Breusch and Pagan Lagrangian multiplier test finds that the random effects model might better fit the data than the pooled OLS model (chi-bar-squared = 218.59, $p < 0.01$). The Hausman test indicates that the fixed effects model might better fit the data than the random effects model (chi-squared = 12.14, $p < 0.05$).

Upon observing the estimated outcomes across the empirical specifications, Hypothesis 3 can be confirmed.

The relationship between macroeconomic conditions and discrimination

Table 6 examines whether macroeconomic conditions are associated with discrimination. It employs fixed effects models, as these were found to

Table 6. Fixed Effects Estimates. The determinants of discrimination.

	Model I Discrimination	Model II Discrimination	Model III Discrimination	Model IV Discrimination	Model V Discrimination
Year 2021 [^]	-0.228 (0.023)***	-	-	-	-
Inflation rate	-	0.043 (0.004)***	-	-	-
Bank Rate	-	-	0.048 (0.006)***	-	-
The year with the highest inflation rate	-	-	-	0.090 (0.025)***	-
The year with the highest Bank Rate	-	-	-	-	0.144 (0.026)***
F	18.49	16.42	12.48	2.83	6.19
Prob > F	0.000	0.000	0.000	0.015	0.000
R-squared	0.003	0.011	0.004	0.157	0.006
Breusch and Pagan Lagrangian multiplier test	451.67; $p = 0.000$	452.11; $p = 0.000$	451.93; $p = 0.000$	454.29; $p = 0.000$	64.33; $p = 0.000$
Hausman test	204.31; $p = 0.011$	99.02; $p = 0.000$	145.39; $p = 0.000$	22.28; $p = 0.000$	452.81; $p = 0.000$

Notes: The data set covers the periods 2021, 2022 and 2023. N = 722. ([^]) The reference category is the period covering the years 2022 and 2023. The models control for individuals' age, higher or vocational education, and employment status. Standard errors are in parentheses. (***) Statistically significant at the 1%.

better fit the data. Additionally, Table 6 incorporates the same control variables as Table 4.

Model I shows that the year 2021 was negatively associated with discrimination ($b = -0.228$, $p < 0.01$, m.e. = -0.010), indicating higher levels of discrimination in 2022 and 2023.

Model II demonstrates that the inflation rate is associated with higher levels of discrimination ($b = 0.043$, $p < 0.01$, m.e. = 0.029). Similarly, Model III indicates that the Bank Rate is associated with higher levels of discrimination ($b = 0.048$, $p < 0.01$, m.e. = 0.011).

Moreover, Model IV shows that when the inflation rate is at its highest, i.e. in 2022, discrimination increases compared to years with lower inflation rates ($b = 0.090$, $p < 0.01$, m.e. = 0.003). Additionally, Model V indicates that when the Bank Rate is at its highest, i.e. in 2023, discrimination increases compared to years with lower Bank Rates ($b = 0.144$, $p < 0.01$, m.e. = 0.005).

The outcomes presented in Models I-V indicate that Hypothesis 4.a can be confirmed.⁴

The relationship between macroeconomic conditions and general and mental health

Table 7 presents estimates of general and mental health, incorporating information on macroeconomic conditions. In all models, fixed effects models

Table 7. Fixed Effects Estimates. The determinants of general health and mental health.

	Model I. General health	Model II. General health	Model III. Mental Health	Model IV. Mental Health	Model V. General Health	Model VI. Mental Health
Year 2021 [^]	-	-	-	-	4.302 (0.473)***	4.613 (0.500)***
Discrimination	-1.034 (0.538)*	-0.523 (0.502)	-0.954 (0.568)*	-0.148 (0.512)	-0.378 (0.512)	-0.192 (0.541)
Year 2021 × Discrimination	-	-	-	-	-0.318 (0.046)***	-0.314 (0.048)***
Inflation rate	-0.261 (0.059)***	-	-0.301 (0.063)***	-	-	-
Bank Rate	-	-0.583 (0.070)***	-	-0.761 (0.072)***	-	-
F	7.26	15.78	11.44	30.41	15.78	22.19
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.728	0.679	0.821	0.401	0.658	0.637
Breusch and Pagan Lagrangian multiplier test	331.19; $p = 0.000$	345.76; $p = 0.000$	226.96; $p = 0.000$	256.96; $p = 0.000$	352.84; $p = 0.000$	252.64; $p = 0.000$
Hausman test	17.81; $p = 0.006$	30.37; $p = 0.000$	21.29; $p = 0.001$	36.30; $p = 0.000$	28.02; $p = 0.000$	23.98; $p = 0.001$

Notes: The data set covers the periods 2021, 2022 and 2023. N = 722. ([^]) The reference category is the period covering the years 2022 and 2023. The models control for individuals' age, higher or vocational education, and employment status. Standard errors are in parentheses. (***) Statistically significant at the 1%. (*) Statistically significant at the 10%.

provide a better fit for the data. Table 7 incorporates the same control variables as Table 4.

Models I and III indicate that both general and mental health were adversely associated with the inflation rate ($b = -0.261$, $p < 0.01$, m.e. = -0.023 , and $b = -0.301$, $p < 0.01$, m.e. = -0.025). Models II and IV indicate that both general and mental health were adversely associated with the Bank Rate ($b = -0.583$, $p < 0.01$, m.e. = -0.019 , and $b = -0.761$, $p < 0.01$, m.e. = -0.023 , respectively). The estimated outcomes indicate that Hypothesis 4.b is supported.⁵

In Model V, it is observed that individuals had better general health in 2021 compared to the period 2022–2023 ($b = 4.302$, $p < 0.01$, m.e. = 0.025). Additionally, an interaction effect between the year 2021 and discrimination indicates that the severity of the association between discrimination and general health is comparatively less severe in 2021 than in the period 2022–2023 ($b = -0.318$, $p < 0.01$, m.e. = -0.015).

Similar patterns are found for mental health in Model VI. Specifically, individuals had better mental health in 2021 compared to the period 2022–2023 ($b = 4.613$, $p < 0.01$, m.e. = 0.025), and the severity of the association between discrimination and mental health is also less in 2021 than in the subsequent period, i.e. 2022–2023 ($b = -0.314$, $p < 0.01$, m.e. = -0.014). The estimated outcomes indicate that Hypothesis 4.c is supported.⁶

Discussion

Outcomes evaluation

This is the first study to specifically investigate how the cost-of-living crisis in the UK is associated with the level of discrimination experienced by Black people and its relationship with general and mental health outcomes. This study addresses a significant gap in the existing literature and provides a foundation for further research in this area, as it is presently unclear whether the increased inflation and Bank Rates could be linked to discrimination and adverse health outcomes. Moreover, the study provides critical insights into how discrimination is related to general and mental health outcomes within the Black community during the cost-of-living crisis. Such evaluations can provide a basis for developing targeted interventions and policies.

In relation to the first hypothesis of the study, the findings confirmed that women, non-native individuals, non-heterosexual individuals, the unemployed, economically inactive individuals, those with lower educational attainment, and older individuals reported significantly higher levels of discrimination compared to their counterparts. One might argue that the hierarchical organisation of social structures reinforces social, economic, and political inequalities, perpetuating discrimination against certain subgroups

within the Black community (Hall 2006). This compounded discrimination manifests in various ways. In the workplace, Black women might face both racial and gender discrimination, limiting their career advancement and earning potential (Drydakis, Paraskevopoulou, and Bozani 2023). In health-care, non-heterosexual Black individuals may encounter both racial and sexual orientation discrimination, which affects the quality of care they receive and their health outcomes (Drydakis 2022b). Each layer of discrimination reinforces the others, creating a web of disadvantage and resulting in multilevel adverse realities for Black individuals (Drydakis, Paraskevopoulou, and Bozani 2023, Drydakis et al. 2018). The current research landscape often overlooks the nuanced differences within the Black communities, resulting in a one-size-fits-all approach that fails to capture the unique experiences of different subgroups. By disaggregating data within the Black community based on various demographic factors, the study provides a more accurate understanding of the realities faced by Black individuals (Drydakis 2024a; Versey and Curtin 2016). This nuanced approach ensures that the specific needs and experiences of various subgroups are recognised.

Moreover, the analyses showed that women, non-native individuals, non-heterosexual individuals, the unemployed, economically inactive individuals, those with lower educational attainment, and older individuals had worse general and mental health outcomes. These findings confirmed the study's second hypothesis, indicating that minoritised demographic factors within Black communities could contribute to health inequalities (Drydakis 2024a). This can widen existing health inequalities in a community that has experienced severe economic deterioration during the Great Recession, the Covid-19 pandemic, and the cost-of-living crisis (Hatch et al. 2016; MacGuire 2020; Office for National Statistics 2023; Raleigh 2023). For instance, in the UK, those with lower incomes within the Black community might have reduced access to resources that mitigate the adverse effects of racism, such as mental health services and healthy coping strategies. Hence, recognising the role of social status groups in influencing health outcomes is crucial for developing effective strategies to combat health inequalities (Drydakis 2024a).

The third hypothesis of the study was found to be supported confirming that discrimination shows significant negative associations with both general and mental health (Drydakis 2022b). A combination of cultural and structural racism due to a Black ethnic background can reduce educational and employment opportunities, ultimately associating with reduced income and deteriorated general and mental health (Devonport et al. 2023; Hackett et al. 2020; Hall 2006; Paradies et al. 2015). Moreover, the interplay of institutional, interpersonal, and internalised racism can manifest as victimisation, barriers to healthcare services, and the adoption of unhealthy lifestyles, all of which are associated with adverse general and mental health

outcomes (Devonport et al. 2023; Hackett et al. 2020; Paradies et al. 2015; Pascoe and Smart Richman 2009). The research results revealed that Black individuals might encounter various forms of discrimination in their interactions with healthcare services, law enforcement, employment and housing markets, school settings, and everyday life, where they also face different types of harassment. Because these demonstrations are not experienced in isolation (Black British Voices Project 2023), the present study highlights the need to recognise the interconnected nature of these issues and establish policies to reduce both incidents of discrimination and the subsequent adversities to Black people's lives.

In addition, the final hypothesis of the study was affirmed, indicating that increased inflation and Bank Rates, reflective of the cost-of-living crisis in the UK, were associated with higher levels of discrimination against Black individuals. Moreover, these macroeconomic deteriorations were also linked to worsened general and mental health. Notably, the relationship between discrimination and adverse health outcomes was found to be more severe during the cost-of-living crisis period (2022-2023) compared to the pre-crisis period (2021). These findings indicate that, on the one hand, macroeconomic deteriorations can amplify existing discrimination against the Black community, and on the other hand, exacerbate the already deteriorated general and mental health of Black individuals (Anderson, Crost, and Rees 2020; Johnston and Lordan 2014). In line with Group Conflict Theory (Sherif 1967), the economic stress experienced during periods of macroeconomic deterioration may trigger exclusionary behaviours in individuals, thereby exacerbating social divides. Furthermore, the economic strain related to the cost-of-living crisis can be associated with poorer living conditions, reduced access to quality healthcare, and financial stress, all of which could contribute to adverse health outcomes (Margerison-Zilko et al. 2016; Meadows et al. 2024; Saleem and Zaidi 2023). A crucial aspect of the study's findings is the intensified relationship between discrimination and adverse health outcomes during the cost-of-living crisis period. This finding indicates that the health adversities related to discrimination can be magnified in times of macroeconomic deterioration. The compounding effect of economic hardship and increased discrimination can create multilevel and more pronounced vulnerabilities for the Black community.

Policy implications

Group Conflict Theory provides a powerful framework for understanding the dynamics of racial and ethnic relations during periods of economic deterioration (Sherif 1967). The study's outcomes underscore the need for targeted policies that address both racial and ethnic tensions, as well as the economic and health inequalities that the cost-of-living crisis brings to the surface. It is

crucial for policymakers to address all forms of racism in efforts to reduce discrimination and enhance the general and mental health of Black communities, particularly during periods of macroeconomic decline (Black British Voices Project 2023; Williams, Lawrence, and Davis 2019). To reduce racism and adverse stereotypes against Black individuals, policymakers should launch public awareness campaigns that emphasise the importance of recognising and addressing racism (Black British Voices Project 2023; Williams, Lawrence, and Davis 2019). Representation and inclusion of Black communities in media, government, and corporate leadership are critical to reducing adverse stereotypes and boosting individuals' self-esteem (Paradies et al. 2015).

It is recommended that policymakers and stakeholders implement anti-racism training in educational institutions, workplaces, healthcare services, and law enforcement agencies. The nature of the training should focus on understanding and respecting diverse identities and experiences, and encourage organisations to develop diversity and inclusion policies (Drydakis 2022a; 2022b). For instance, sensitivity in healthcare should ensure that healthcare providers receive training on addressing the healthcare needs and experiences of Black individuals, considering the unique experiences of Black women, non-heterosexual individuals, and older individuals (Drydakis 2022a; 2022b; Williams, Lawrence, and Davis 2019).

Moreover, to reduce racism, there is a need to enforce existing anti-discrimination laws to explicitly address discrimination based on race, gender, sexual orientation, age, and other identities (Drydakis 2022a; 2022b; Paradies et al. 2015). Policymakers should provide resources and training to enforcement agencies to effectively address complaints and support victims. There is a need to expand affirmative and/or positive action programmes to ensure equitable access to education and employment opportunities for Black individuals, especially from disadvantaged backgrounds within Black communities (Williams, Lawrence, and Davis 2019). Resources are needed to invest in schools and educational programmes in underprivileged communities, ensuring that students receive high-quality education, especially during the present period where advanced technology can both boost human capital and its corresponding returns, as well as reduce technology-driven divides (Drydakis 2024b). In addition, policymakers should develop policies that promote economic opportunities for Black individuals, such as job training, small business support, and inclusive hiring practices (Drydakis 2022a). Additionally, there is a need to address police violence, over-policing, and the mass incarceration of Black individuals (Black British Voices Project 2023).

Finally, to address the macroeconomic factors contributing to increased discrimination and deteriorating health outcomes, policymakers should focus on stabilising the economy. This can include measures such as implementing inflation control strategies to reduce financial strain on vulnerable populations and providing financial support and relief programmes, such

as subsidies, tax reliefs, and direct financial assistance to low-income households (Bank of England 2024).

Limitations and future research

The present study collected data during Black History Month in London, England. Future studies should broaden their data collection to include various regions. Additionally, the study gathered data during three specific periods. It is imperative to collect longitudinal data over a significant time-frame to observe how the intensity of identified patterns changes over time. Furthermore, future studies should aim to recruit a larger number of participants through random sampling to enhance the reliability of generalisations.

While the study distinguished between native and non-native Black individuals, it did not examine how discrimination varies across ethnic groups. Therefore, it would be interesting for new studies to provide further insights and examine the extent of discrimination across Asian, Caribbean, African, and mixed populations. The study collected longitudinal data in a process to offer better informed evaluations. However, new studies should collect data on certain long-term general and mental health conditions, as well as personality characteristics and long-term vulnerabilities to reduce unobserved heterogeneities.

Moreover, the study did not control for coping strategies. Further investigation is needed into how individuals cope with discrimination and its association with general and mental health outcomes. Finally, the study captured discrimination through individuals' self-reported reflections on adverse realities. New studies might be interested in gathering information on formal complaints related to racism stemming from a Black ethnic background and providing new evaluations.

Notes

1. In the UK, in 2023, the percentage point difference between the unemployment rate for White individuals and Black/African/Caribbean/Black British individuals was approximately 3.3 percentage points (3.6% vs 6.9%). In 2024, this difference increased to 4.4 percentage points (3.3% vs 7.7%) (House of Commons Library 2024).
2. In 2022, representative data indicate that in the UK, Black people experience an employment rate of 69% (Race Disparity Unit 2023).
3. In 2023, representative data indicate that in the UK, Black/African/Caribbean/Black British people experience an unemployment rate of 6.9%, with young people in these communities experiencing an unemployment rate of 27% (House of Commons Library 2024).
4. Both OLS and random effects models confirm Hypothesis 4.a.
5. Both OLS and random effects models confirm Hypothesis 4.b.
6. Both OLS and random effects models confirm Hypothesis 4.c.

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Contributor roles defined

Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing original draft, Review and Editing: Professor Dr Nick Drydakis.

Statement of ethics

The procedures used in this study adhere to the tenets of the Declaration of Helsinki, and Belmont Report. Approval was obtained from the ethics committee of Anglia Ruskin University, UK.

Consent to participate

Informed consent was obtained from all individual participants included in the study. Informed consent was obtained verbally.

Availability of data and material

The data appendix, codes and original software estimates have been provided to the Journal during the submission process. The data that support the findings of this study are available on reasonable requests.

Code availability

The data appendix, codes and original software tables have been provided to the Journal during the submission process. The codes that support the findings of this study are available on reasonable requests.

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