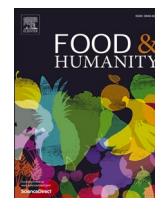


bradscholars

A study of mental#health and food bank use in the UK using propensity score matching

Item Type	Article
Authors	Waqas, Muhammad;Iqbal, Syka;Stewart-Knox, Barbara
Citation	Waqas M, Iqbal S, Stewart-Knox, B (2026) A study of mental# health and food bank use in the UK using propensity score matching. Food and Humanity. 6: 101091.
DOI	https://doi.org/10.1016/j.foohum.2026.101091
Rights	©2026 The Author(s). This is an Open Access article distributed under the Creative Commons CC-BY license (https://creativecommons.org/licenses/by/4.0/)
Download date	2026-04-21 11:15:14
Link to Item	https://bradscholars.brad.ac.uk/handle/10454/20820



A study of mental-health and food bank use in the UK using propensity score matching

Muhammad Waqas^{a,1} , Syka Iqbal^{b,2,*} , Barbara Stewart-Knox^{c,3}

^a Department of Accounting, Finance and Economics, University of Bradford, United Kingdom

^b Department of Psychology, University of Bradford, United Kingdom

^c Department of Psychology, University of Bradford, United Kingdom

ARTICLE INFO

Keywords:

Mental health
GHQ
Inequalities
Food banks
UKHLS

ABSTRACT

Mental health in the United Kingdom is declining, particularly among those experiencing food insecurity, whilst food bank use is increasing. This study uses data from the UK Household Longitudinal Survey (2009–2024) to examine associations between food bank use and mental health, measured by the General Health Questionnaire for which responses were on a 4-point scale and reverse-scored with potential scores of 0–36, with higher scores representing more favourable mental health. Propensity matching on demographic factors (gender; age; education level; income; employment status; marital status; number of children; UK region) was employed to compare mental health between households that used foodbanks, those not using food banks and those who were unable to access a food bank. Results indicated that people who used food banks had significantly lower mental health than those who did not. A novel finding was that people who sought but could not access food banks had even lower mental health than those who had accessed food banks. This implies that attending a food bank may be beneficial to mental health. Policies and interventions that improve access to food banks could assist users in achieving better mental health and in meeting the United Nations (2012) Sustainable Development Goals related to food provision and mental health.

1. Introduction

Access to healthy, affordable food is a growing public health concern and has long been recognised as a critical determinant of both physical and mental health (Myers, 2020), which disproportionately impacts people from less affluent backgrounds (Thompson, Smith, & Cummins, 2018). The terms ‘food poverty’ and ‘food insecurity’ are often used interchangeably to refer the broader problems related to household food access rather than nutritional status (Dowler & O’Connor, 2012). This paper will henceforth adopt the term ‘access’ when referring to acquisition of food. The UK Food Standards Agency (FSA) consumer insights tracker report (YouGov, 2025), based on survey of 6066 adults across the UK, highlighted the ongoing challenge of ensuring access to food. In 2024, 26 % of people reported being worried about affording and accessing food. These figures reflect economic pressures upon UK households and the rise in cost of living contributing to reduced access to

food and greater reliance on food banks.

Food banks are a societal response to the inability to access food, they distribute food aid to those in need and which are considered a last resort for those at risk of going hungry (DEFRA, 2021). In the UK, food banks are organised by registered charities such as the Trussell Trust (1300) and the Independent Food Aid Network (IFAN) (1000+) as well as other providers including places of worship, community organisations, schools, hospitals, commercial and social enterprises (DEFRA, 2021). In the UK, reliance on food banks has become increasingly more prevalent among families with limited access and uncertain ability to acquire food (Taylor & Loopstra, 2016). According to the Family Resources Survey (DWP, 2022), 3 % of UK households were using food banks during 2023, rising to 19 % of those receiving universal credit. Food bank use was highest in households in the North-West of England (5 %) and among those aged under 24 years (7 %). As reliance on food banks has grown, organisations such as the Trussell Trust report

* Correspondence to: Department of Psychology, University of Bradford, Richmond Road, BD7 1DP, United Kingdom.

E-mail addresses: M.waqas9@bradford.ac.uk (M. Waqas), S.iqbal@bradford.ac.uk (S. Iqbal), B.Stewart-Knox@bradford.ac.uk (B. Stewart-Knox).

¹ Orcid: 0000-0001-5050-0159

² Orcid ID: 0000-0001-5292-5871

³ Orcid ID: 0000-0002-6741-3657

record-high demand, particularly following the economic disruption of the COVID-19 pandemic and ongoing inflation (Weekes, Spoor, Weal, & Moffett, 2020). Food aid (Rauschenbach et al., 1990) and food banks (Taylor, Boyland, & Hardman, 2024) offer relief to those who are unable to afford food. This shift highlights a fundamental breakdown in societal safety nets, forcing many households into dependence upon charitable aid (Loopstra & Lambie-Mumford, 2023). Food bank usage therefore disproportionately impacts upon the most vulnerable societal populations.

People with mental ill-health problems are more likely to experience difficulty in accessing food (Giles et al., 2024) and limited access to food has been associated with poorer mental health outcomes in several high-income countries (Afulani, Coleman-Jensen, & Herman, 2020; Leung & Stanner, 2011; Maynard et al., 2018; Pryor et al., 2016). Previous survey studies have pointed to an association between food bank use and mental health problems (Barker, Halliday, Mak, Wottge, & Russell, 2019; Bigand, Dietz, Gubitz, & Wilson, 2021; Loh, Knight, & Loopstra, 2021; MacLeod, Curl, & Kearns, 2019). Secondary analysis of Trussell Trust and Health Survey for England data found that food bank users experienced greater (self-reported) mental health problems than the wider population (Loh et al., 2021). Systematic review (Taylor et al., 2024) of 41 (qualitative and quantitative) articles has also highlighted the negative psychological impact of food bank use. Previous qualitative studies of people using food banks have attributed mental health problems to the poor nutritional quality and limited range of food available within food banks (Giles et al., 2024; Rizvi, Enns, Gergyek, & Kristjansson, 2022) and the perceived social stigma attached to food aid (Giles et al., 2024; Purdam, Garratt, & Esmail, 2016). Poor diet and social stigma associated with food bank use, therefore, hold potential to contribute to poor mental health.

The psychological impact of inability to access food can extend beyond immediate stress and anxiety, contributing to long-term mental health conditions such as depression and social withdrawal which could prevent access to food aid (Myers, 2020). In the UK, most food banks are accessed through formal referral systems that provide vouchers to households on benefits and experiencing food shortages to exchange for food parcels. However, many individuals are unable to obtain the vouchers (Perry, Williams, Sefton, & Haddad, 2014). Alongside this, there is a growing body of evidence indicating that the barriers to food bank access are not only logistical but also psychological, with many individuals feeling a sense of failure or embarrassment when seeking assistance (Middleton, Mehta, McNaughton, & Booth, 2018). People may not access food banks owing to the perceived social stigma, shame and negative perceptions of others (Loopstra & Lambie-Mumford, 2023), all of which can exacerbate mental health difficulties. Individuals experiencing mental health problems may also struggle with the logistical aspects of food bank access, such as arranging transport, navigating application processes, or seeking referrals from healthcare or social service providers (Perry et al., 2014; Thompson et al., 2018). People may therefore be unable to access food banks owing to a range of social, psychological and practical barriers.

Whether mental health problems are an antecedent or consequence of food bank use remains unclear and could be bidirectional (Abeltdt, 2024). Poor mental health may also influence an individual's ability to access essential resources such as food banks (Puddephatt et al., 2020). People who cannot access food aid could potentially experience even greater detriment to mental health than those who do receive food aid. Together this indicates a need to better understand mental health in food bank users as well as those who seek but are unable to access food banks. By examining patterns of food bank usage and mental health outcomes, this study aims to build upon existing evidence and identify critical intervention points to address access to food and associated mental health. Deeper understanding of the intersection between food provision, access and mental health is essential for informing interventions and policies that not only reduce food bank dependency but also support mental well-being (Lambie-Mumford & Loopstra, 2020).

Existing studies of food bank use and mental health have not employed representative UK-wide samples, matched samples or measured mental health using validated tools. This secondary analysis of United Kingdom (UK) Understanding Society - UK Household Longitudinal Survey (Service), therefore, contributes to the literature in meeting a need to establish the nature of any link between food bank use and mental health in a large UK-wide representative sample. The design of this analysis is novel in comparing mental health between propensity matched samples of similar demographic background who access and do not access food banks. We will compare mental health using the 12-Item General Health Questionnaire (GHQ-12) (Goldberg et al., 1997) between those who have accessed food banks, and demographically matched samples of those who have not sought a food bank and those who report having sought but were unable to access a food bank. By identifying key factors that influence both food bank access and inability to access food banks and mental health, the study seeks to inform policies and interventions that better support vulnerable populations. The results should assist in review of practices within food banks and inform UK policies on food bank access and mental health. Controlling for demographic factors (through propensity matching), we ask if accessing food banks is associated with detrimental or beneficial mental health compared to those who do not access food banks. We also ask the additional novel question of whether a demographically matched sample of those who have sought but been unable to access food banks experience better or worse mental health compared to food banks users. In this way we seek insight into whether using food banks are detrimental or beneficial to mental health. Given existing research, it is hypothesised that the food bank users will have less favourable mental health than those of similar demographic profile who have not attended food banks. In the absence of previous research upon which to draw, we have refrained from making a directional hypothesis on the mental health of the matched sample of those who sought but were unable to access food banks.

2. Method

This analysis considers data collected as part of the United Kingdom Household Longitudinal Survey (UKHLS), also known as 'Understanding Society'. The data analysis protocol was pre-registered on the Open Science Framework (OSF) repository <https://doi.org/10.17605/OSF.IO/H59YK>. The secondary data analysis plan underwent ethical screening by checklist (EC28497) and was granted approval by the Vice-Chair of the Humanities, Social and Health Sciences Research Ethics Panel at the University of Bradford on 26th November 2024.

2.1. Sampling

Detailed information about the UKHLS survey including study design, sampling, study timeline, questionnaire design, interview process, fieldwork procedures, response rates, data collection and data processing can be accessed at: <https://www.understandingsociety.ac.uk/documentation/mainstage/user-guides/main-survey-user-guide/>. The UKHLS survey collects data from a UK nationally representative sample on an annual basis and contains information from approximately 50,000 individuals in each wave. Data for 'mainstage waves' 11–2019/21, 12–2020/22 and 14–2022/24 (N = 63,588) were accessed for the purpose of this analysis.

2.2. Materials

Mental health was assessed using the 12-Item General Health Questionnaire (GHQ-12) (Goldberg & Blackwell, 1970). Responses to the GHQ questions were on a 4-point scale. Scores were summed producing a score that ranged from 0 to 36. To aid interpretation, responses were reverse scored so that a higher score represented more favourable mental health.

Food bank use was assessed using the question ‘How often has your household used a food bank, or similar service, in the last 12 months?’ for which responses were: not at all; at least weekly; once or twice a month; less than once a month. A further question enquired if people were ‘unable to use a food bank’ Those who answered no to having used a food bank were asked why they ‘have not been able to use a food bank’ and was used to create the sub-group of those unable to access foodbanks.

Data on respondent’s gender, age (below average; average to 89th percentile; greater than 89th percentile), education level (higher degree; other degree; no qualification), income (below average; average to 89th percentile; greater than 89th percentile), employment status (employed; self-employed; unemployed; inactive; other), marital status (single; married; divorced; widowed), number of children (none; one; two; three or more) and UK region were also accessed and assessed.

2.3. Data analysis

The UK Household Longitudinal Survey (UKHLS), also referred as Understanding Society, is a longitudinal survey whereby data are collected annually from around 40,000 UK households in each wave (14 waves to date).⁴ For this analysis waves 11, 12, and 14 of the UKHLS were used because data on food bank usage were only available in these waves. These data were cross-sectional which enabled us to obtain the best possible match for the treated group (food bank users) using a propensity score matching technique. Propensity Score Matching (PSM) calculates the propensity score (probability) that each person received the treatment (food bank use), based on their observed characteristics and matches individuals in the "treated" group with similar individuals from the "control" group (non-food bank users) who have a similar propensity score. PSM reduces bias by matching the groups based on observed characteristics, and by imitating the conditions of a randomized experiment. The UKHLS waves 11, 12 and 14 used in this analysis identified 1871 respondents who used foodbanks. Two comparison groups comprised of those who were unable to access a food bank (n = 683) and those did not use foodbanks (n = 61,717) were sampled (also from waves 11, 12 and 14) (Table 1). The three groups were then matched using propensity scoring. A propensity score indicates the probability that an individual has been assigned to a treatment or group having controlled for potential confounders and covariates (Rosenbaum & Rubin, 1983). Several Propensity score matching techniques were employed (Nearest Neighbour; One to One; Caliper; Radius; kernel) so that those with similar propensity scores could be grouped together. The comparator groups were matched to the food bank attendees on sample size, gender, age, education level, income, employment status, marital status, number of children and UK region. The samples were matched on age and income as categorical variables and then the models were run again using age and income as continuous variables which generated similar results (see supplementary file). Mental health was assessed using the GHQ was taken as the outcome variable and compared between food bank attendees and matched non-attendees and those who were unable to access a food bank. All analyses were conducted using STATA/BE (version 17.0).

3. Results

3.1. Sample description

Demographic details of food bank users, those who were unable to access food banks and non-users of food banks are shown in Table 1. It presents the percentage of respondents for each variable present in each

⁴ For detailed information about the UKHLS, sampling techniques, questionnaires used, and all other relevant information, see, <https://www.understandingsociety.ac.uk/documentation/mainstage/>.

Table 1 Sample summary descriptives.

	Not used food bank %	Used food bank %	Unable to use or access food bank %
Male	45	38	40
Below 50th pctile age	47	67	61
Age between 50th to 89th pctile	41	30	35
Age greater than 89th pctile	12	04	04
Below average income	45	67	62
Income between average to 89th pctile	44	29	32
Income greater than 89th pctile	11	04	06
Higher degree	45	29	34
Other degrees	46	55	51
No Qualification	07	13	11
Single	20	35	34
Married	66	46	45
Divorced	08	14	15
Widowed	06	05	05
No Child	78	63	74
One Child	10	15	12
2 Children	10	13	10
3 or more than 3 children	03	09	03
Employed	57	40	44
Self-employed	07	06	04
Unemployed	04	19	13
Inactive	38	38	39
Any other labour market status	02	03	04
North East	04	03	03
North West	10	12	12
Yorkshire and the Humber	09	08	09
East Midlands	07	08	07
West Midlands	08	09	12
East of England	09	07	07
London	11	16	17
South East	13	11	10
South West	09	07	07
Wales	06	06	05
Scotland	09	09	08
Northern Ireland	06	04	02

of the three groups in our analysed sample.

London had the largest proportion of food bank users, followed by the North-West and South-East of England and Scotland. London also had largest proportion unable to access a food bank which is graphically presented in Fig. 1.

Of those who had used food banks or who wanted but were unable to access food banks, the highest proportion were in households below average income, educated to degree level, and married with no children. The majority of those using food banks or unable to access them were in employment, followed by those who were economically inactive.

3.2. Propensity score matching

Several methods were used for propensity matching and all produced the same result. In all cases those who used food banks experienced worse mental health than those who did not use food banks. In Fig. 2a, box and whisker plots indicated that propensity scores of those who used food banks were well matched to those who had not used a food bank. Similarly, Fig. 2b showed propensity score of those who used food banks were well matched to those who were unable to access a food bank. To further, demonstrate the quality of matching, love plots were employed. Fig. 3a and Fig. 3b presented below show that propensity scores of our control and treatment groups were well matched.

Table 2a showed that both before and after matching (on all propensity score matching methods) those who had not used foodbanks had

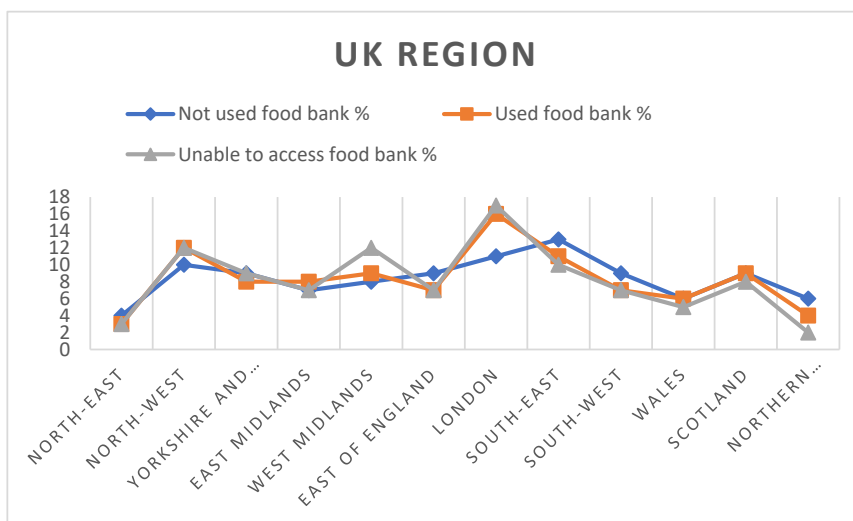


Fig. 1. Foodbank use and UK region London had the largest proportion of food bank users, followed by the North-West and South-East of England and Scotland. London also had the largest proportion unable to access a food bank.

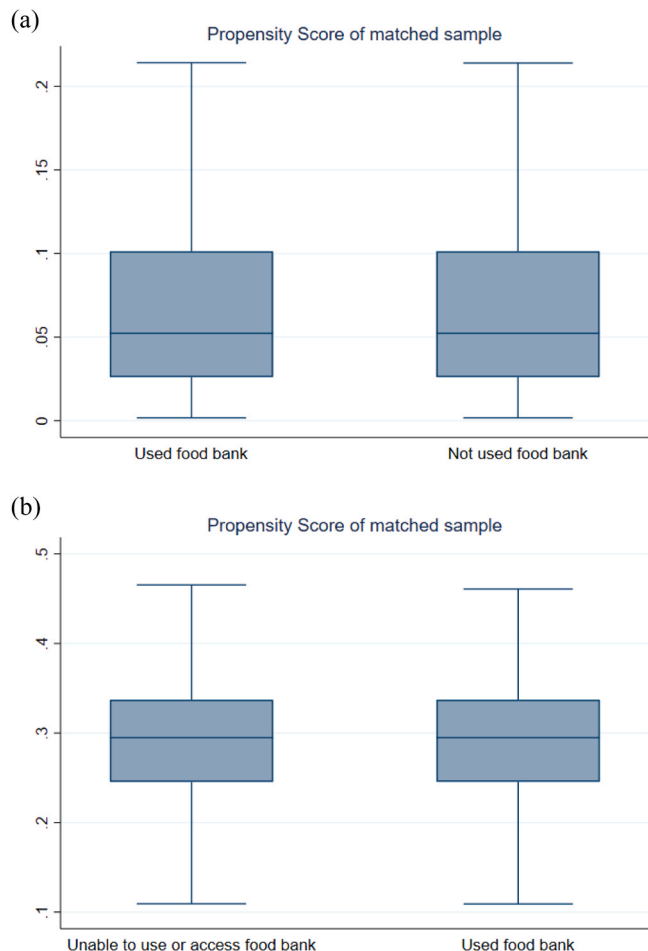


Fig. 2. a: Matching of respondents who “Used food bank” Vs. “Not used food bank” Fig. 2b: Matching of respondents who were “Unable to use or access food bank” Vs. “Used food bank”.

significantly better mental health than those who had used them. Likewise, Table 2b showed that those who used foodbanks had significantly better mental health than those unable to access them.

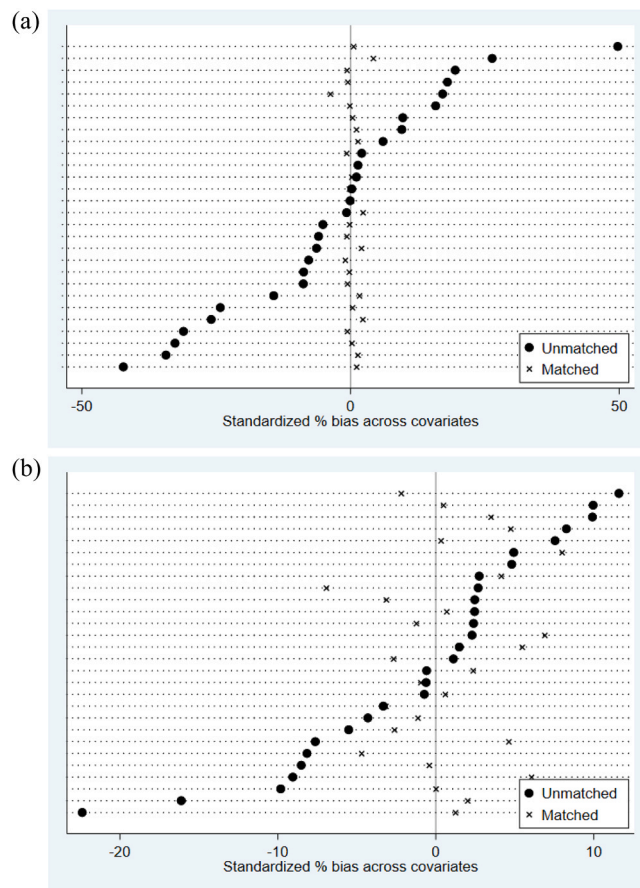


Fig. 3. a: Matching of respondents who “Used food bank” Vs. “Not used food bank” Fig. 3b: Matching of respondents who were “Unable to use or access food bank” Vs. “Used food bank”.

4. Discussion

This analysis has sought to determine mental health as assessed by the GHQ in food bank attendees and demographically matched households who did not access or who were unable to access a food bank who

Table 2a
Mental health of “respondents used food banks” Vs. “respondents did not use food banks”.

Propensity Score Matching (PSM) method	Mental Health of Treated (Unable to use or access food banks)	Mental Health of Controls (Used food banks)	Difference	T-stat
Unmatched	19.18	20.20	-1.02	-2.84
Nearest neighbour matching (5)	19.17	20.51	-1.34	-3.30
One to one matching	19.17	20.39	-1.22	-2.45
Caliper matching (001)	19.19	20.42	-1.23	-2.29
Radius matching (001)	19.19	20.42	-1.23	-3.15
Kernel matching	19.17	20.30	-1.13	-3.04
Sample Size	683	1871		

Table 2b
Mental health of “respondents unable to use or access food bank” Vs. “respondents used food bank”.

Propensity Score Matching (PSM) method	Mental Health of Treated (Unable to use or access food banks)	Mental Health of Controls (Used food banks)	Difference	T-stat
Unmatched	19.18	20.20	-1.02	-2.84
Nearest neighbour matching (5)	19.17	20.51	-1.34	-3.30
One to one matching	19.17	20.39	-1.22	-2.45
Caliper matching (001)	19.19	20.42	-1.23	-2.29
Radius matching (001)	19.19	20.42	-1.23	-3.15
Kernel matching	19.17	20.30	-1.13	-3.04
Sample Size	683	1871		

responded to the understanding society survey waves –14 (2024). Heads of household who used foodbanks were propensity matched to those who did not use food banks on marital status, education level, employment status, household income, number of children and UK region. The aim has been to understand and explain previous research linking mental ill-health to food bank use (Afulani et al., 2020; Giles et al., 2024; Maynard et al.; 2018; Pryor et al., 2016). We asked not only if mental health was better or worse in those who accessed food banks but also if being unable to access a food bank was associated with detrimental or better mental health. Given previous research, we hypothesised that the food bank users would have less favourable mental health than the propensity matched group of those who did not attend and the matched group who were unable to attend food banks. Our results supported this hypothesis and implied, irrespective of which of the five matching techniques was applied, that mental health was less favourable among those who used food banks. This finding corroborates previous research indicating that food bank users experience poorer mental health than the wider population (Loh et al., 2021) and previous survey studies that have identified a link between food bank use and poor mental health (Barker et al., 2019; Bigand et al., 2021; Loh et al., 2021; MacLeod et al., 2019; Taylor et al., 2024).

In the endeavour to explain this link between mental health and food bank use and to determine if attending a food bank was beneficial or detrimental to mental health, we also compared food bank users with a matched sample of those who sought but were unable to access a food bank. We found that those who sought but were unable to access a food bank reported even worse mental health than those who had successfully availed of the services of a food bank. This implies that attending a

food bank may be beneficial to mental health and accords with existing research indicating an association between reduced access to food and adverse mental health outcomes (Abeldt, 2024). Previous attempts to explain the observed association between mental health and food bank use have assumed the problem is rooted in the negative psychological impact of food bank use (Rizvi et al., 2022; Taylor et al., 2024), the social stigma attached to food aid (Giles et al., 2024; Purdam et al., 2016) and logistical problems in accessing food banks (Perry et al., 2014; Thompson et al., 2018). Poor mental health has also been attributed to the poor nutritional quality and limited range of food available through food banks (Giles et al., 2024; Rizvi et al., 2022). Contrary to this, our finding that mental health was better in food bank users than those who were unable to access a food bank, suggests that attending a food bank may actually be beneficial to mental health. That mental health was less favourable among those who sought but were unable to access a food bank than among those who had been successful in accessing a food bank, is consistent with the notion that poor mental health preceded food bank use and agrees with previous longitudinal survey conducted in Canada which indicated some improvement in perceived mental health (assessed using the SF-12) following access to the food bank (Rizvi et al., 2022). Together, these results imply some potential for food banks to improve the mental health of their clients (Loopstra, 2018).

4.1. Strengths and limitations

This secondary analysis of United Kingdom (UK) Understanding Society - UK Household Longitudinal Survey has met a need to establish the nature of the link between food bank use and mental health. Household level measures however can be limited in that they only consider the responses of the head of household, who may or may be in control of food acquisition. Conclusions have been strengthened by using the validated 12-Item General Health Questionnaire (GHQ-12) (Goldberg & Blackwell, 1970) as an indicator of mental health. Although the GHQ has proven utility for the measurement of mental health at the population level (Gelaye et al., 2015; Lundin et al., 2017), the unidimensional, short (12 item) version of the GHQ may be less sensitive than the longer tool in identifying clinically relevant mental health deficit. A further potential limitation is that the cross-sectional design of the survey does not enable inference on causation. It is possible that poorer mental health among those who were unable to access a food bank prevented them from seeking access to food bank. However, unlike previous studies of food banks, our analysis has drawn upon longitudinal data collected from large UK-wide representative population samples which renders the findings generalisable. Given propensity matching can be assumed to infer causation from observational data after accounting for non-random selection (Rosenbaum & Rubin, 1983), these data suggest that attending food banks is associated with better mental health compared to those who were unable to gain access to a food bank. Taking a propensity matched sample approach to compare mental health between users, non-users and would be users of food banks, therefore allows us to draw tentative conclusions on whether food bank attendance is beneficial or detrimental to mental health. This analysis is therefore novel, robust and contributes to our understanding of the association between food bank use and mental health.

5. Conclusions

Our findings imply that after controlling for demographic factors, those attending food banks had poorer mental health than matched cases who had not availed of food banks. In seeking to explain this finding, we found that those who sought but failed to access food banks reported less favourable mental health than those who had accessed food bank services suggesting that attending a food bank may benefit mental health. It is also possible that poor mental health contributed to difficulty in accessing food banks. Despite this, policy responses often

focus on food distribution rather than addressing the underlying psychological barriers that prevent people from accessing food banks and the psychological advantages inherent in attending a food bank. If so, these findings imply a need to re-think practices within food banks and to take advantage of a potential opportunity to enhance mental health. Food banks are well placed to identify those at risk of poor mental health and hold potential to intervene to help people achieve better mental health. These data also emphasise an urgent need to review UK policies directed towards facilitating access to food banks and to assist food aid providers in providing psycho-social support to those accessing food. Together, these findings add to the growing body of knowledge linking population mental health to economic policy (Taylor et al., 2024). Food banks provide crucial support for individuals facing difficulties in accessing food and while originally intended as emergency measures, increasing long-term dependence on food banks suggests systemic failure in welfare provision (Loopstra & Lambie-Mumford, 2023). Meanwhile, mental health and food bank usage remains an under-researched area (Compton, 2023).

CRedit authorship contribution statement

Barbara Stewart-Knox: Writing – review & editing, Writing – original draft, Supervision, Methodology, Formal analysis, Conceptualization. **Muhammad Waqas:** Writing – review & editing, Writing – original draft, Software, Methodology, Formal analysis, Conceptualization. **Syka Iqbal:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Conceptualization.

Ethics approval statement

This analysis was ethically approved by the Social and Health Sciences Research Ethics Panel at the University of Bradford on 26th November 2024 (EC28497).

Permission to reproduce material from other sources

The manuscript contains no material that would require permissions from other sources.

Data Availability statement

Data are available in the public domain and can be downloaded after registering with UK Data Service (<https://doi.org/10.5255/UK-DA-SN-6614-20>)

Funding statement

This research received no external funding.

Declaration of Competing Interest

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.foohum.2026.101091](https://doi.org/10.1016/j.foohum.2026.101091).

References

Abeltd, B. (2024). The Relationship Between Food Insecurity and Mental Health. *American Journal of Psychiatry Residents' Journal*, 20(2), 15–17. <https://doi.org/10.1176/appi.ajp-rj.2024.200206>

Afulani, P.A., Coleman-Jensen, A., & Herman, D. (2020). Food insecurity, mental health, and use of mental health services among nonelderly adults in the United States. *Journal of Hunger & Environmental Nutrition*.

Barker, M. E., Halliday, V., Mak, D., Wottge, M., & Russell, J. M. (2019). Food security, nutrition and health of food bank attendees in an English city: a cross-sectional study. *Journal of Hunger Environmental Nutrition*, 14(1-2), 155–167.

Bigand, T. L., Dietz, J., Gubitz, H. N., & Wilson, M. (2021). Chronic pain and depressive symptoms are related to food insecurity among urban food bank users. *Journal of Public Health*, 43(3), 573–580.

Compton, M. T. (2023). Food and nutrition insecurity: a social determinant hungry for attention by mental health professionals. *Psychiatric Services*, 74(12), 1303–1306.

DEFRA (2021). United Kingdom Food Security Report 2021: Analysis of statistical data relating to the food security of the United Kingdom. Retrieved from (<https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2021>).

Dowler, E. A., & O'Connor, D. (2012). Rights-based approaches to addressing food poverty and food insecurity in Ireland and UK. *Social Science Medicine*, 74(1), 44–51. <https://doi.org/10.1016/j.socscimed.2011.08.036>

Gelaye, B., Tadesse, M. G., Lohsoonthorn, V., Lertmeharit, S., Pensuksan, W. C., Sanchez, S. E., & Williams, M. A. (2015). Psychometric properties and factor structure of the General Health Questionnaire as a screening tool for anxiety and depressive symptoms in a multi-national study of young adults. *Journal of Affective Disorders*, 187, 197–202. <https://doi.org/10.1016/j.jad.2015.08.045>

Giles, E. L., Eskandari, F., McGeechan, G., Scott, S., Lake, A. A., Teasdale, S., & Lynch, C. (2024). Food insecurity in adults with severe mental illness living in Northern England: Peer research interview findings. *International Journal of Mental Health Nursing*, 33(3), 671–682.

Goldberg, D. P., & Blackwell, B. (1970). Psychiatric illness in general practice: a detailed study using a new method of case identification. *British Medical Journal*, 2(5707), 439–443.

Goldberg, D. P., Gater, R., Sartorius, N., Ustun, T. B., Piccinelli, M., Gureje, O., & Rutter, C. (1997). The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine*, 27(1), 191–197.

Lambie-Mumford, H., & Loopstra, R. (2020). Food banks and the UK welfare state. *The Rise of Food Charity in Europe* (pp. 191–218). Policy Press.

Leung, G., & Stanner, S. (2011). Diets of minority ethnic groups in the UK: influence on chronic disease risk and implications for prevention. *Nutrition Bulletin*, 36(2), 161–198. <https://doi.org/10.1111/j.1467-3010.2011.01889.x>

Loh, S., Knight, A., & Loopstra, R. (2021). Working-age adults using food banks in England have significantly poorer health and higher rates of mental health conditions than adults in the general population: A cross-sectional quantitative study. *Health Social Care in the Community*, 29(5), 1594–1605.

Loopstra, R. (2018). Rising food bank use in the UK: sign of a new public health emergency? In: *Wiley Online Library*.

Loopstra, R., & Lambie-Mumford, H. (2023). Food banks: Understanding their role in the food insecure population in the UK. *Proceedings of the Nutrition Society*, 82(3), 253–263.

Lundin, A., Åhs, J., Åsbring, N., Kosidou, K., Dal, H., Tinghög, P., & Dalman, C. (2017). Discriminant validity of the 12-item version of the general health questionnaire in a Swedish case-control study. *Nordic Journal of Psychiatry*, 71(3), 171–179. <https://doi.org/10.1080/08039488.2016.1246608>

MacLeod, M. A., Curl, A., & Kearns, A. (2019). Understanding the prevalence and drivers of food bank use: evidence from deprived communities in Glasgow. *Social Policy and Society*, 18(1), 67–86.

Maynard, M., Andrade, L., Packull-McCormick, S., Perlman, C. M., Leos-Toro, C., & Kirkpatrick, S. I. (2018). Food insecurity and mental health among females in high-income countries. *International Journal of Environmental Research and Public Health*, 15(7), 1424.

Middleton, G., Mehta, K., McNaughton, D., & Booth, S. (2018). The experiences and perceptions of food banks amongst users in high-income countries: An international scoping review. *Appetite*, 120, 698–708. <https://doi.org/10.1016/j.appet.2017.10.029>

Myers, C. A. (2020). Food Insecurity and Psychological Distress: a Review of the Recent Literature. *Curr Nutr Rep*, 9(2), 107–118. <https://doi.org/10.1007/s13668-020-00309-1>

Perry, J., Williams, M., Sefton, T., & Haddad, M. (2014). UK: Child Poverty Action Group. *Emergency Use only: Understanding and reducing the Use of Food banks in the*.

Pryor, L., Lioret, S., van Der Waerden, J., Fombonne, É., Falissard, B., & Melchior, M. (2016). Food insecurity and mental health problems among a community sample of young adults. *Social Psychiatry and Psychiatric Epidemiology*, 51, 1073–1081.

Puddephatt, J.-A., Keenan, G. S., Fielden, A., Reaves, D. L., Halford, J. C. G., & Hardman, C. A. (2020). Eating to survive: A qualitative analysis of factors influencing food choice and eating behaviour in a food-insecure population. *Appetite*, 147, Article 104547. <https://doi.org/10.1016/j.appet.2019.104547>

Purdam, K., Garratt, E. A., & Esmail, A. (2016). Hungry? Food insecurity, social stigma and embarrassment in the UK. *Sociology*, 50(6), 1072–1088.

Rauschenbach, et al. (1990). Dependency on soup kitchens in urban areas of New York State. *American Journal of Public Health*, 80, 57–60.

Rizvi, A., Enns, A., Gergyeck, L., & Kristjansson, E. (2022). More food for thought: a follow-up qualitative study on experiences of food bank access and food insecurity in Ottawa, Canada. *BMC Public Health*, 22(1), 586.

Rosenbaum, P. R., & Rubin, D. B. (1983). The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika*, 70(1), 41–55.

Taylor, A., & Loopstra, R. (2016). *Too poor to eat. Food Insecurity in the UK*. London: the Food Foundation.

Taylor, N., Boyland, E., & Hardman, C. A. (2024). Conceptualising food banking in the UK from drivers of use to impacts on health and wellbeing: A systematic review and directed content analysis. *Appetite*, 203, Article 107699. <https://doi.org/10.1016/j.appet.2024.107699>

- Thompson, C., Smith, D., & Cummins, S. (2018). Understanding the health and wellbeing challenges of the food banking system: A qualitative study of food bank users, providers and referrers in London. *Social Science Medicine*, 211, 95–101. <https://doi.org/10.1016/j.socscimed.2018.05.030>
- Department of Work and Pensions (DWP). (2022). Family resources survey: financial year 2020–2021.
- Weekes, T., Spoor, E., Weal, R., & Moffett, G. (2020). Lockdown, lifelines and the long haul ahead: The impact of COVID-19 on food banks in the Trussell Trust network. *Trussell Trust, Salisbury*.
- YouGov, F. S. A. (2025). Consumer Insights Tracker (October 2024 – December 2024). *FSA Research and Evidence*. <https://doi.org/10.46756/sci.fsa.nfy518>. Retrieved from.