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Sick of debt: How over-indebtedness is hampering health in rural Cambodia

Dalia Iskander [a,*], Fiorella Picchioni [b], Giacomo Zanello [c], Vincent Guermond [d], Katherine Brickell [e]

[a] Department of Anthropology, University College London, 14 Taviton St, London, WC1H 0BW, UK
[b] Food and Markets Department, Natural Resources Institute, University of Greenwich, Central Avenue, Chatham Maritime, Kent, ME4 4TB, UK
[c] Department of Agri-Food Economics and Marketing, University of Reading, Whiteknights, PO Box 217, Reading, RG6 6AH, UK
[d] School of Business and Management, Queen Mary University of London, 327 Mile End Rd, London, E1 4NS, UK
[e] Department of Geography, King's College London, Bush House, North East Wing, 40 Aldwych, London, WC2B 4BG, UK

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ABSTRACT

This paper evidences how many rural poor Cambodians are sick of debt. Based on original, mixed-method data (2020–2022), exploring credit provisioning in this context, the aim of this paper is to illuminate some of the conditions leading to rural Cambodians taking on debt to bolster their health, and the effects this is having on borrowers' physical, psychological, emotional and social health. Specifically, we show how the health of our participants is constrained by a range of major illnesses that many suffer from and their poor food conditions, both exacerbated by the effects of climate change. Against this backdrop, many resort to debt-taking from multiple sources, including microfinance, as a coping strategy to pay for out-of-pocket health expenses and to cover food costs. While such loans offer a short-term means of sustaining health, we show that the extent of debt needed is leading to over-indebtedness which ultimately undermines health in the longer-term. Debtors are pushed to make further undue sacrifices to their food, treatment options and living conditions, specifically to service debt. We show how they are then rendered vulnerable to being exposed to, and experiencing, the negative effects of health and economic shocks, as well as to different forms of psychological, physical, emotional, social, and moral suffering to meet payments. Being sick of debt is especially acute for overindebted women who take on an increased double shift of productive and reproductive work to pay loans. While some of the adverse effects of over-indebtedness are made visible here, we warn that other forms of suffering potentially remain hidden, and will likely be expressed as longer-term population patterns of ill-health. In this context, over-indebtedness is hampering the government's aim of achieving universal health coverage and interventions are needed that reduce the debt crisis among the rural poor in order to improve health.

1. Introduction

Concern has been growing for decades regarding the high levels of debt many Cambodian citizens are in, especially as borrowed money is now the primary mechanism people use to meet the non-productive costs of life, including sustaining their health (Liv, 2013), constituting what Federici (2014) terms the 'financialization of reproduction' (ibid: 233). In particular, scholarship attests to how commonplace borrowing money for health costs is. For example, a recent study shows how out of the 5000 households surveyed, 28% paying health expenses had borrowed money to do so, with 55% of these subjected to borrowing with interest. Loans averaged $75-$200, with only 22% managing to repay the debts they had incurred more than 12 months before the survey (Ir 2019). Similarly, a recent report commissioned by two non-governmental organisations states that, out of 717 surveyed households, 12% reported they took out formal microfinance/bank loans for health expenses, while 50% reported using informal loans, which often have even higher interest rates, to cover the cost of their healthcare (LICADHO, 2023). The aim of this paper is to illuminate some of the conditions that are leading to rural Cambodians taking on debt to bolster their health in ways including, but not limited to, paying for health expenses, and the effects this is in turn having on borrowers' physical, psychological, emotional and social health.

Debt in Cambodia is normalised to the extent that half of the

* Corresponding author.
E-mail addresses: Dalia.Iskander@ucl.ac.uk (D. Iskander), f.picchioni@greenwich.ac.uk (F. Picchioni), g.zanello@reading.ac.uk (G. Zanello), vincent.guermond@qmul.ac.uk (V. Guermond), katherine.brickell@kcl.ac.uk (K. Brickell).

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country's GDP is held as microloan debt, making it the world's largest (on a per capita basis) and most profitable privately-owned microfinance sector (LICADHO, 2023). By 2023, the microloan portfolio had risen to more than $16 billion, across 2.89 million loans from registered microfinance institutions (MFIs) and a group of banks that were formerly MFIs (ibid.). The country has a long and somewhat contentious history with microfinance. Following the end of the Civil War and the signing of a peace agreement in 1991, the sector initially played an important role in post-unification rebuilding efforts (Gyorvary and Lamb, 2021) – especially necessary after the social and economic despair brought about by the Khmer Rouge (Alldèn, 2009). Microfinance was expected to help fill an institutional vacuum in the emerging Cambodian economy (ibid.) by integrating the marginalised into civilian life, especially demobilised soldiers (Bateman, 2017). However, what started as a modest NGO-driven initiative, soon ballooned. Numerous MFIs sprang up all over the country and began to target their attention on lending to a much wider group of people, especially those in rural areas. In the absence of adequate state social and health services, lending was not only aimed at entrepreneurial activities but also at the sustenance of basic living needs (Gyorvary and Lamb, 2021). This trajectory has continued and today with a microfinance sector that is now a playground for financiers more than philanthropists. Although a small number of large institutions hold around 75 percent of the country's microloans, the formal credit sector now constitutes around 81 registered MFIs, 47 commercial banks, twelve specialist banks and 246 Rural Credit Institutions. A large proportion of institutional ownership has been transferred to foreign investors whose primary aim is to maximise profit through extensive lending (Brickell et al., 2024; Guermond et al., 2024). Original lending models have long been abandoned and, although uncollateralized debt persists, the vast majority of loans now require land as collateral (ibid.). In addition, the debt landscape is not only confined to microfinance as thousands of informal, non-registered private money lenders saturate the country (Bliss, 2022). Evidence suggests borrowers often use informal loans for healthcare emergencies when cash is needed quickly for fees as they require fewer documents and often disburse money quicker than MFIs/banks (LICADHO, 2023). Needing to then pay off high interest rates, borrowers often cycle their debts by getting an MFI/bank loan to repay their private loans as soon as possible (ibid.) – trapping them in cycles of indebtedness. The ecology of debt is so pervasive, particularly in rural villages, that institutions and their persistent debt collectors on motorbikes are a common sight and sound, tenaciously encouraging lending and aggressively collecting payment, driving and disciplining indebtedness from the top-down (Brickell et al. 2024).

The reasons why so many Cambodians, especially in rural areas, are having to rely on debt to cover costs associated with bolstering their health are manifold. First, inadequate state access, provision and financing means the majority of Cambodians continue to pay for up to 60% of their health costs out of pocket (World Bank, 2024), largely to the unregulated, pro-rich private sector (Asante et al., 2019), representing one of the highest percentages in Southeast Asia. The Royal Government of Cambodia's overall health strategy is orientated towards achieving universal health coverage (UHC) - 'all people having equitable access to quality health services without undergoing the financial hardship associated with paying for care and other related costs' (MOH 2016: 19). System reform and effective health financing are key pillars of UHC in order that well-functioning services both provide high-quality care and lessen the need for individuals to pay out-of-pocket expenses (OOPE). Accordingly, as well as invest in efforts to re-build systems following their near-total destruction under the Khmer Rouge, the government's latest publicly available Health Strategic Plan 3 (2016–2020) and National Social Protection Policy Framework (2016–2025) also outline commitments towards expanding financial protection pre-payment schemes to help decrease the burden of health costs for citizens. Some progress has been made to these ends. The public sector has seen modest progress in terms of quality, efficiency, and equity of service delivery (World Health Organization, 2015) and there have been some associated improvements in health outcomes (Asante et al., 2019). The Health Equity Fund that exempts the poorest in society from user fees, has been expanded since 2015 (Kolesar et al., 2020) and protection insurance schemes for salaried formal workers and civil servants, managed by the National Social Security Fund, similarly expanded since 2016 (National Social Security Fund, 2021).

However, investment in healthcare remains below recommended benchmarks needed to improve financial protection and decrease the reliance on OOPE (Kaiser et al., 2023). Kolesar et al. (2020) estimate that over half of the population are ineligible for any of the current financial support schemes and total coverage only extends to a third of the population. In fact, data shows that since 2017, the overall OOPE budget as a share of household expenditure has continued to rise, especially amongst rural households, exposing people to financial risks and hardship and violating UHC's key tenets of simultaneously securing good health and ensuring financial protection for citizens (Kaiser et al., 2023). Many health outcomes across the country still rank among the poorest in the Southeast Asian region (Asante et al., 2019) with regional disparities in services particularly acute, exacerbating ill-health, poverty and inequality in rural areas (Fernandes Antunes et al., 2018).

Second, in addition to inadequate healthcare, despite sharp declines in poverty rates in recent years, close to 50% of citizens are also still economically vulnerable – especially those living in rural areas – having escaped absolute poverty by only the narrowest of margins (World Bank, 2020). Evidence suggests that in such circumstances, even modest OOPE can have serious negative consequences for individuals and households and is a common cause of poverty in this context (Van Damme et al., 2004). It is also well established that for many, the only way to pay for OOPE and other costs associated with sustaining health is to resort to distress financing to raise necessary cash (Ir 2019) - selling assets, using savings, withdrawing children from school, reducing food consumption, foregoing further medical care or crucially, taking on debt (McIntyre et al., 2006).

Third, the normalisation of debt for sustaining health in rural Cambodia is also bolstered by bottom-up demand, driven in part, by significant agrarian change over the past few decades. A combination of population dynamics, policy shifts in property rights, land concessions/grabs, rapid deforestation, dispossession and broader market economics has wrought significant changes to the country's land use and agricultural production methods (Green, 2022; Teck et al., 2023). Despite rapid structural transformation since the mid-1990s into higher-productivity manufacturing and services (export orientated garments and footwear), rain-fed lowland rice farming continues to be a crucial livelihood activity for food and income generation in many rural households (World Bank, 2023). However, a number of factors mean rice farming is now unpredictable, expensive and precarious (Guermond et al., 2022; Guermond et al., 2024). In particular, a rapid transition has taken place from subsistence to semi-commercial and commercial production, drawing farmers into the volatilities of the global market economy. Worryingly, Cambodia also ranks amongst the countries most vulnerable to climate change. It is the world's fourth most flood-exposed country, particularly along the Mekong and Tonle Sap floodplains where 80 percent of the country's population live. It also experiences some of the highest temperatures in the world, placing it in the top 23 countries with acute exposure to extreme and exposing a third of its two main crops – maize and rice - to regular drought stress (ibid.). Poorer households and women are particularly vulnerable to climate change impacts but economic modelling suggests climate stress will have wide-ranging social and economic consequences including exacerbating already worrying levels of ill-health, poverty and food insecurity. Under such circumstances, it is also possible that many rural Cambodians are resorting to debt to pay for food, as another coping strategy for bolstering their health.

It is against this backdrop that the aim of this paper is to illuminate some of the conditions that are leading to rural Cambodians taking on

debt to bolster their health and the effects this is in turn having on borrowers' physical, psychological, emotional and social health. Some recent scholarship has used quantitative methods to explore some of the direct and indirect factors associated with borrowing money specifically for health services. As summarised by Ir et al. (2010), these include household socio-economic-status, location in a rural area, household size, number of elderly members aged 65 years or older, number of children under-five years of age, number of members sick in the past month, type of healthcare service received/used and the location of services utilized. Here, we used mixed-methods data to illuminate what conditions rural Cambodians are living in that lead them to turn to debt as a means of bolstering their health in ways including, but not limited to, paying for health services. Specifically, we aim to understand how precarious subsistence, rising food insecurity and the rapidly changing climate is also contributing to debt-taking as a coping strategy to sustain health.

This paper also explores what effect being in debt is having on borrowers' health. While short-medium term debt can positively effect health, long-term debt has been shown to have deleterious effects on health for example by reducing life expectancy and increasing premature mortality (Clayton et al., 2015). A systematic review of 33 peer-reviewed papers concluded that indebtedness brings with it serious

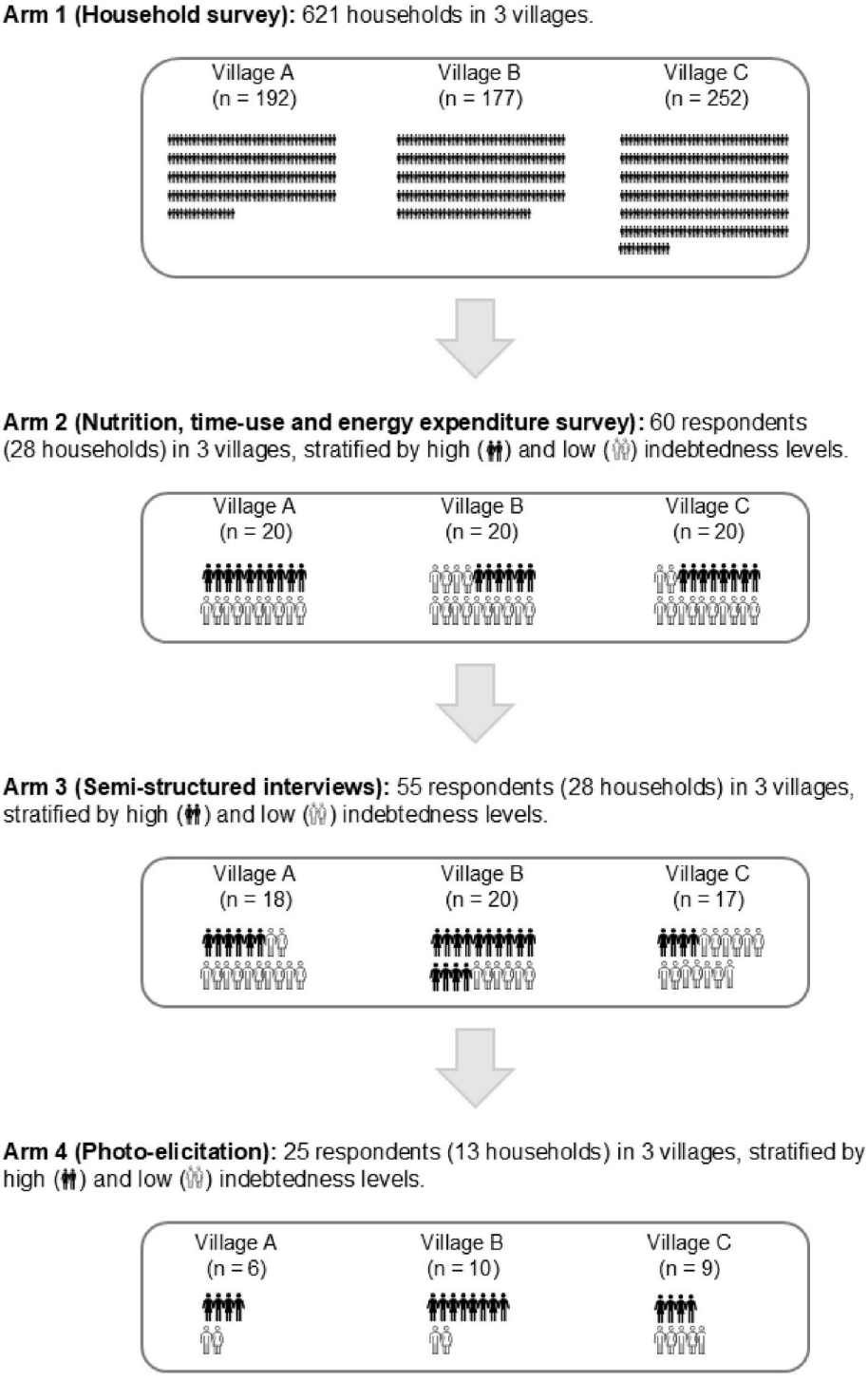

Fig. 1. Sequential sampling and data extraction process across different arms of the project. Source: Authors' own calculations.

effects on quality of life including increased depression, suicidal ideation and poorer health-related behaviour (Turunen and Hiilamo, 2014). In Cambodia specifically, a growing body of research has shown how the over-indebted are suffering both physically and mentally specifically because of the burdens caused by debt (Comins et al., 2015; LICADHO, 2023; LICADHO, 2020). Accordingly, our aim is to also add to this body of evidence by bringing together mixed-methods data that elucidates what living with debt is like for rural Cambodians.

2. Methods

This paper draws from field research carried out between October 2020 and February 2022 in three villages in the Cambodian provinces of Prey Veng, Kampong Cham, and Battambang (Villages A, B, C, respectively), as well as the capital, Phnom Penh. In the three study villages, rice-farming households represent between a quarter and a half of all surveyed households and villages were selected as they represent differentiated vulnerabilities to droughts and floods, and distinctive reliance upon rice-based agriculture. The study is part of a broader research project Depleted by Debt. Which examines the relationship between climate change, debt, health and nutrition in Cambodia and India. Specifically, it explored the interaction of credit provisioning with borrowers' physical, psychological, emotional and social lives. Our methodology was anchored in interdisciplinarity (i.e., human geography, medical anthropology, nutrition and economics). Quantitative and qualitative data were collected using a sequential sampling approach, where data in each arm informed the subsequent phase's sampling process (Fig. 1.) Different stratification strategies were adopted at each stage (as described below) and data were triangulated to achieve both representativeness and in-depth understanding of context-specific patterns.

Ethical approval was gained for the project through Royal Holloway. Free, informed prior consent was obtained from all participants involved in the study who were all aged over 18. Given the sensitive and political nature of indebtedness in Cambodia, particular attention was paid to issues relating to consent and anonymity. We ensured participants were aware of their right to cease data collection, withdraw at any time if they felt uncomfortable and were clear about uses of their data. All data were anonymised at the point of collection and pseudonyms have been used in place of the names and places (including the villages) in order to maintain the privacy of participants. This includes local and national stakeholders whose names and organisations have been anonymised unless they specifically requested otherwise. Data collection coincided with the Covid-19 pandemic which significantly hampered planned methods. Nevertheless, research was possible in Cambodia as, by March 2021, the country reported zero deaths and mitigated both the spread of disease and fatalities. Local Cambodian research assistants worked intermittently around lockdowns and travel restrictions. When able to conduct the research in person, they followed recommended health and safety protocols. Researchers based in the United Kingdom, including ourselves, were finally able to travel to Cambodia in February and September 2022 to undertake final stages of field research.

In terms of quantitative data, in **Arm 1,** 621 household surveys, complemented by 1161 individual questionnaires, were carried out in the three study villages between Oct–Nov 2020 (See Table 1 in Supplementary Material for details of household level characteristics). In each of these three villages, experienced enumerators attempted to deliver the survey to every villager over the age of 18. However, due to a combination of migration patterns, agricultural schedules, and refusals, the final figure was lower than the total estimated population. Together, they collected information on household demographics, occupation, migratory histories, household assets, debts and liabilities, farming assets, saving and lending practices, experience of climate change, food security and capacity to mitigate the impacts of climate change. In line with Covid-19 protocol (i.e., outside, maintaining social distance and using masks), surveys and questionnaires were administered in Khmer using a tablet and the KoboToolbox survey tool by the team of six male and female Cambodian enumerators, experienced in quantitative methods, ethics and data protection.

In January 2021, in **Arm 2**, nutrition, time-use and energy expenditure data were collected for a sub-group of respondents from Arm 1 (Fig. 1). A composite indebtedness index, comprising both objective and subjective measures, was derived from household survey data following the conceptualization of indebtedness measurements by Guérin et al. (2013). The debt-to-asset ratio is a financial measure that shows the proportion of total assets that is funded by debt. It is calculated by dividing the total amount of debt by the total value of assets. A higher ratio means that more of the assets are financed through debt, which could indicate higher financial risk. The index includes objective (debt to asset ratio - normalised before the computation of the indebtedness index) and subjective measures (sale of assets to repay loan; stress to repay loan; sources of loans avoided; debt servicing borrowing). The composite index is a household average of the above-mentioned elements categorising households into two categories: high indebtedness and low indebtedness Five households in each of the two indebtedness classifications were then purposively sampled in each village. Due to participant's willingness to participate to the study, 60 respondents from 28 households were selected (see Tables 2 and 3 in the Supplementary Material for details of participants' household and individual characteristics). Local enumerators allocated two members (often but not always spouses) from each household an accelerometer device for a period of six consecutive days to capture the energy expenditure of their daily activities. Research-graded tri-axial ActiGraph GT3X + accelerometers were used and data were collected at 30 Hz/s. Movement data were translated to energy expenditure using cut-off points based on age used by (Troiano et al., 2008) and validated using the methodology by Trost et al. (2011). Simultaneously, these participants also took part in daily 24 h recall time-use (30 min intervals) and food intake surveys, administered by the same team of enumerators in line with Covid-19 protocols and based on methods described elsewhere (Zanello et al., 2017; Zanello et al., 2020). In our analysis we matched, for each individual, a large array of daily activities with their energy expenditure as well as calculate daily calorie intakes in relation to energy expenditure. Data from Arms 1 and 2 were cleaned, translated into English and analysed by members of the UK-based research team using SPSS and STATA. Descriptive statistics, such as tabulations across variables of interest, were employed to analyse data at the individual level, as well as to combine different variables across Arms 1 and 2.

In terms of qualitative data collection, semi-structured interviews were conducted between Mar–May 2022 in **Arm 3** with 55 of the village participants sampled in Arm 2 (see Tables 4 and 5 in Supplementary Material for details of participants' household and individual characteristics). Interviews explored the links between debt, nutrition, physical and emotional health, and climate and environmental change and disasters, with the aim of giving voice to experiential and subjective interpretations of the debt-nutrition-health-climate change nexus. Interviews were conducted by the same team of enumerators, who were also trained in interview methods, in Khmer and later transcribed and translated and into English for analysis by the UK-based team. Key-informant interviews were also conducted with 39 local and 22 national stakeholders respectively, in the three villages and in Phnom Penhn consisting of representatives of local authorities, microfinance institutions, banks, informal credit providers, health professionals, government workers, and international financial and development institution staff. Interviews focussed on socio-economic changes in the villages, links between microfinance and climate change, the impacts of Covid-19 on the microfinance sector and issues of over-indebtedness and debt payment. Due to a lifting of travel restrictions, these interviews were carried out by a UK-based researcher in English. All interviews were audio recorded and transcribed for analysis by the UK-based team. All transcripts were thematically analysed using NVivo software. In the first phase of analysis, data were coded in order to identify patterns and

themes. A codebook was developed comprising codes and sub-codes generated from etic and emic categories, descriptions of each, and examples of representative data. In the second phase, this was compared and cross-referenced with the codebook developed in Arm 4 and shared with the wider research team for feedback and recommendations. The two were then synthesized to produce one master codebook consisting of 13 principal codes (e.g., Household Economics, Employment, Health, Nutrition, Climate/Environmental Change) and over 150 sub-codes that were then applied across the different qualitative datasets in a second round of thematic analysis.

Finally, photo-elicitation **(Arm 4)** was conducted with 25 participants in all three villages (i.e., half of the participants from Arm 3 randomly selected) between Mar–May 2021 (see Tables 6 and 7 in Supplementary Material for details of participants' household and individual characteristics). The team of local enumerators were provided with online training in photo-elicitation methods by an experienced researcher from the UK team and carried out data collection in line with Covid-19 restrictions, (outside, using masks). Following basic training in camera use, participants were given cameras for one week and asked to photograph key elements of their daily lives, relating to their livelihoods, food and debt in particular. Enumerators returned a set of numbered images to each participant and conducted interviews over the phone, using photos as prompts to describe and contextualise lived experience. Interviews were carried out in Khmer, transcribed and translated into English for analysis by the UK-based team. In line with literature on photo-elicitation, photographs were not subject to content analysis. Rather, the associated narratives served as the data set (Harper, 2002) and transcripts were thematically analysed as outlined in Arm 3.

In what follows, all references to tables are to be interpreted as tables in the Supplementary Material.

3. Debt for health

In terms of the conditions that are leading to rural Cambodians taking on debt to bolster their health, in this section, we present findings that reveal that our participants are suffering from range of major illnesses and poor food conditions, both exacerbated by the effects of the climate, that are constraining their health. Crucially, against this backdrop of inadequate provision of public care, poor coverage of health financing and unstable and unhealthy nutritional landscapes, people are taking on debt of different kinds, including microfinance, as a short-term coping strategy to pay for OPPE and food costs to try and help bolster their health in the short-term.

In terms of health issues, among surveyed households, sickness in the family is the highest-ranking stress they face (26%) and the vast majority of individuals (92%) across both low (94%) and high debt (89%) levels in all three villages reported in questionnaires that they have current health problems such as long-term knee pain, back pain, arthritis, and heart and blood pressure problems (Table 3). Many are considered 'major' illnesses – i.e., those that last a long time, cost a lot to treat, do not necessarily respond to treatment creating associated anxiety, stress, and mental health issues (Ir et al., 2010). Specifically, 18% across high and low debt categories, report their illness has lasted at least three consecutive months, and for 32% across both debt levels, this means they are unable to carry out their usual activities including work for between 1 and 120 days, increasing their risk of impoverishment (Table 3). In interviews, people mentioned that climate change, especially in the last five to ten years, is a major factor exacerbating their ill-health. They describe how the increasingly 'irregular' or 'upside--down' nature of the weather is making them sicker, especially the elderly, children and those with existing health conditions. Of particular concern is rising temperatures which pose a significant risk to health as heat gain compromises the body's ability to regulate temperature resulting in a cascade of illnesses (WHO, 2018). Participants describe how the 'sizzling', 'boiling', 'blazing' and 'airless' conditions are causing them short-term bouts of fatigue, headache, fever, dehydration, loss of appetite and insomnia or are making their chronic illnesses worse. They also experience and worry about the health effects of the increased use of toxic chemicals that are being used to mitigate the effects of unpredictable weather, as described below. In addition, many report how they suffer increased stress, anxiety and psychological anguish as a result of threats that the changing climate poses to their lives and livelihoods (Iskander et al., 2022 for more details).

In addition, the inadequate provision of public healthcare and poor coverage of health financing means many incur significant healthcare costs and experience serious economic hardship as a result of OOPE, largely made to private healthcare providers. 75% of surveyed households did not benefit from any government assistance schemes. Only 8% were registered for the Identification of Poor Households Program (IDPoor) programme which provides Health Equity Access Cards to the poor to allow access to a variety of services, including public healthcare, and 9% said they receive other forms of health-related assistance. 75% of those who reported being recently sick sought medical assistance or consultation from private providers such as pharmacies, private Registered Medical practitioners (RMPs), traditional healers and private clinics (Table 3). When care in Cambodia is too expensive, insufficient or failed, some travel for private treatment abroad including to Vietnam or Thailand. In household surveys, the main expense people have had in the last 10 years over US$250 is OOPE with 22% reporting spending an average of US$1124 on OPPE over the same time period. Significantly, in qualitative interviews, nearly all spoke of incurring very high OOPE as a result of illness and how, as a result, they are forced to make sacrifices to everyday lives such as 'spending economically to save money for hospital fees'; or 'cutting down on buying food to pay for medicines.'

Crucially, surveys reveal that many households cope with the loss of earnings due to sickness and/or costs of OOPE through distress financing – i.e., drawing on their savings, selling assets or borrowing. Borrowing with or without interest for health payments takes the form of both informal and formal loans. Specifically, the majority (66%) of households have some form of debt with 50% of households falling into each of the categories of low and high debt levels (Table 1). The average debt to asset ratio across households is 20% (Table 1), raising to 50% among those in high debt. Almost half of all households (45%) have at least one loan from a microfinance institution or bank, representing on average 64% of the household's total debt. 8% have at least one loan from a moneylender (representing 7% of the household's debt) and 24% have at least one debt from a relative or friend (representing 24% of the household's debt). Of those in debt, 9.3% report that their last loan was, in part, used for OOPE. Participants report that 26% of MFI/bank loans are for OOPE; 20% from money lenders and friends and relatives are for such purposes and 18% from wealthy individuals are used for OOPE. Farming households in all three villages are significantly more indebted than non-farming households due to the increasingly precarious nature of farming which we elaborate elsewhere (Guermond et al., 2024). The experience of Kunthea, a farmer who lives in Village A with her husband and two of her three daughters, exemplifies how many are dealing with multiple major illnesses in their household and have to rely on debt of different kinds to help meet the costs of OOPE and loan fees in turn. Kunthea suffers from a chronic vascular illness herself and was also contending with a host of other health issues within her household:

> *'I have spent a lot of money on my own treatment – that's why I took a loan of 2–3 thousand [US] Dollars from the bank… One of my children is always getting sick… My other daughter was also sick and I spent a lot of money caring for her… I really didn't want to borrow the money, but we are really poor! We cannot have healthy food to eat so our health becomes worse from day to day. All the money that we have is for the debt fee! It's so awful! I don't know what to tell you! I feel sick every day and I don't have a solution… I might need to borrow some more money from my neighbour just to pay the fee loan! Look at me, I am also sick and I have to be responsible for the fee loan' (Kunthea, Village A)*

For households like Kunthea's who are categorised as in high debt

using our index, the average debt to asset ratio is 20% (see Table 2). As her story attests, as well as confront a number of health issues/costs, many of our participants also struggle to have enough cash to meet their nutritional needs, compounding their poor health even further. While food is largely available at a macro-level in Cambodia, supply and access to nutritious and healthy foods is inadequate and it is estimated 2.3 million people (14%) face severe food insecurity and levels of dietary quality remain poor (USAID, 2021). People's right to food is hampered by land grabbing, high food prices, and unequal access to resources. As such, households are forced to spend 70% of their income on food (ibid.) and a recent national survey found that, on average, 16% of households cannot afford nutritious diets without loans (WFP et al., 2023). The reliance on loans makes people particularly vulnerable to shocks (Sophal, 2011). Waan for example, lives in Village B with seven of her family members and falls into the low debt category. Following the death of her husband, the main breadwinner became her son. However, after he suffered from meningitis and was unable to work, Waan and one of her daughters are now the only members of the family able to earn cash. Although Waan works to sell foraged vegetables, receives a military widow's pension, and has an IDPoor card giving her free access to some public healthcare services, her income is not enough to sustain her and her families' food security. Waan's situation typifies the difficulties with nutrition that many are facing on top of their health issues, especially non-farming households like hers:

> *'In the past, even though it was difficult, I never had this kind of poor food for my children. Now, I do not have anything to feed them. This morning, I came home and I was crying because I did not make any money from selling vegetables and I could not feed my sick son. My niece brought me a cake and some fish and then my tension released a little. I did not have any [of the food] so they could eat. I just persuaded my children to eat to be full this time and then we can think about how to get the next meal later'. (Waan, Village B)*

In our study, the Household Food Insecurity Score (HFIAS) was used to calculate the prevalence of food insecurity among surveyed households, comprising nine occurrence questions about specific conditions associated with food insecurity in the previous four weeks, followed by a frequency-of-occurrence question (see Coates et al., 2007). Overall, 68% of households are classified as either mildly (31%), moderately (17%) or severely (20%) food insecure (Table 1). Food insecurity is higher among non-farming households as 71% of non-farming households are classified as food insecure, compared to 60% of farming households and 63% of households engaging in both farming and non-farming activities.

In our study, many farming households reported in interviews that they are not able to produce enough rice through cultivation to meet their nutritional and financial needs through sale (Guermond et al., 2022; Guermond et al., 2024). Threats to cultivation are considerably exacerbated by the impacts of climate change as increased temperatures and fluctuations in rainfall significantly affect production yields, making rice farming a precarious livelihood strategy (ibid.). While some farming households keep chickens or ducks and/or grow a range of fruits and vegetables to supplement diets and reduce household expenditure on purchased food, these practices too are highly susceptible to the effects of 'hot and cold weather irregularity', as one farmer put it. Issues extended to an inability to gather enough foraged food which is especially significant for non-farming households like Waan's. Many rely on augmenting their diets through animal-source proteins such as fish, snails, frogs, birds and insects as well as gathering seasonal fruits and vegetables. A mix of climatic factors, land-use changes, lack of demand and reduced sale prices, especially during the Covid-19 pandemic, mean foraged food is also insufficient in meeting people's dietary and financial needs (through sale). It is perhaps not surprising then, that the majority (79%) of surveyed households report worrying about not having enough food to eat in the last month. In interviews too, people report that food is 'not enough', 'lacking', or 'in shortage', and the frequency ranged from 'once in a while' to 'every day'.

In the face of such difficulties in procuring fresh foods, many participants rely on processed and ultra-processed foods to augment their diets. Cambodia is experiencing a shift in food consumption patterns, with an increasing availability of ultra-processed foods and snacks high in salt, fat and sugar. Ultra-processed foods and sugar-sweetened beverages are becoming prevalent, and consumed by all population groups, resulting in a food environment that is not supporting healthy diets (WFP et al., 2023). Approximately 17% of the calorie intake of participants included in Arm 2, derived from processed (12%) and ultra-processed foods (5%). Participants reported a significant amount of their calorific intake coming from snacks and sweets and the average Body Mass Index among participants we collected nutritional data on was 23.1 for men and 24.2 for women, highlighting how half of the respondents (of which 33% are women) are classified as overweight. The average calorie adequacy ratio (CAR) – i.e., the ratio of total calorie intake over total energy expenditure where greater than 1 indicates calorie intake is higher than energy expenditure - is 1.23, offering another indication that amongst our sample, a high number of participants are at risk of being overweight or having other diet-related non-communicable diseases such as hypertension, diabetes, and hypercholesterolemia.

This picture of illness compounded by food insecurity and intake of unhealthy food also points to the issue of inadequate use/utilisation of food due to health issues (i.e., illness reducing nutritional status) among study participants. In interviews, many reported how diet-related conditions including nutrient deficiency and high blood pressure meant they are unable to eat the range and quantity of foods they want to. A number also reported how the weather, namely increased heat, leaves them feeling 'exhausted', 'dizzy', 'thirsty' and with 'no appetite', making it harder to consume food and gain 'goodness', or 'enjoyment', from it. They also reported how insufficient nutrition is increasing instances of fatigue, insomnia and propensity to illnesses such as cold and flu as well as exacerbating chronic illnesses such as high blood pressure. In addition to health issues affecting use/utilisation of food, participants also reported problems accessing clean or safe foods, especially because those bought in markets were seen to be 'dirty' and 'exposed to harmful chemicals. Nevertheless, participants mentioned 'having no choice' but to buy such foods or consume grown or foraged food that they too considered to be unsafe from the use of pesticides (Iskander et al., 2022).

Overall, our data paint a picture of an unstable and unhealthy nutritional landscape which is further hampering health in this context. To cope, people employ different strategies such as reducing the quality and quantity of food (Iskander et al., 2022). Crucially, many take on debt in the form of formal and informal loans to meet daily food needs. Nearly 1 in 4 (22%) of households surveyed report that their last loans were, in part, used to feed their family - the most common reason reported. The majority of loans from wealthy people (72%), employers (69%), moneylenders (55%) and friends and relatives (52%) are partly used on food. This is not surprising as people report asking known people for help with food compared to MFIs (31%) and banks (26%), as these loans take longer to obtain. Again, while loans ease some pressure and arguably help sustain health in the short-term, for many, they also lead to conditions of over-indebtedness whereby more sacrifice, including to health and nutrition is needed to pay debt, as we go on to describe in the next section.

4. Sick for debt

In terms of the effects debt is having on borrowers' health, in this section, we present findings that reveal that our participants are over-indebted whereby, despite the short-term relief debt provides, the longer-term sacrifices that they make to pay their loans is leaving them hungrier, untreated, living in poorer conditions and ultimately more vulnerable to health and economic shocks. Living in such precarious conditions of over-indebtedness is taking a physical, psychological and emotional toll on debtors who are, quite literally, sick for debt. As

described above, the majority have loans from multiple sources and although these help with short-term survival, it is clear that, as soon as debtors have some cash at their disposal, paying back loans is their priority. In fact, across the three villages 12.5% and 9.1% of surveyed (Arm 1) participants in high and low debt respectivly said the last time they borrowed from a microfinance institution/bank or an informal moneylender respectively, it was partly to pay off another loan. As Rachana from Village C put it, people are juggling multiple debts, just to 'be alive temporarily'.

To survive, in the 'here and now' many make a number of high and ongoing sacrifices to service debt – the epitome of over-indebtedness (Schicks, 2013). For example, in interviews, people report regularly making dietary sacrifices such as selling their rice or chickens rather than eating them, despite not having enough food for their families, just to raise cash to pay debts. For non-farming households, dietary sacrifices are even more pronounced with many reporting reducing quantity and quality of food specifically to service debt. Additionally, some participants forego health treatment in order to save money for repayments. For example, Da and her husband, who are from a household categorised as high in debt, are unable to earn enough income from farming and selling foraged vegetables to pay their debts from multiple sources. As well as 'going hungry' on regular occasions to prioritise keeping money for loans, Da does not seek treatment for her illness to avoid taking on even more debt for hospital fees. This unsurprisingly exacerbates her illness and depleted income-earning potential even further:

> *'Sometimes I must be patient and stay still with the pain at home until we find money to go to the hospital. I must be patient until I think I cannot be patient anymore – then I go to borrow more money from others. If we were not poor and we had more money I would not let my illness become so serious. Maybe it would have been treatable a long time ago if I had the money to pay the treatment fee'. (Da, Village B)*

Many also report sacrificing basic amenities such as electricity, solar power, gas or freshwater supplies in their homes making life 'difficult', 'hard', 'scary' and 'sad'. Others avoid purchasing items (from motorbikes and farming machinery to fans and washing machines) that would enhance their health and well-being, particularly in response to the effects of climate change. Many, like Da, describe how they lack enough money to make basic improvements to their homes because of debt, making their living conditions especially difficult in the face of bad weather such as heavy rain, wind, and hot temperatures: *'[If] we didn't have any debt, I can have some saving so I can have money to support our living standard'*.

As a result, rural Cambodians are living on the edge, rendering them vulnerable to shocks (McKee et al., 2017). This was brought into sharp relief by the fact our study coincided with the Covid-19 pandemic. The majority reported that the pandemic resulted in further depletion of their food, health, income and savings and even higher increases in their rates of borrowing to cope. According to the household survey (Arm 1), the main coping strategies put in place by individuals included: reducing household expenditure (74.2%), applying for government schemes, such as IDPoor (29.6%), and increasing support from remittances (15.5%). Approximately 6% resorted to distress financing to get by. In such conditions, people saw their 'social resilience' depleting fast, i.e., their capacity to secure favourable outcomes under new circumstances and, if need be, by new means (Hall and Lamont, 2013). This was epitomised by Amar's situation. As a construction worker, he recently suffered a work-related injury, making it impossible for him to work for the few weeks prior to our study. As the only member of his household (categorised as high in debt) earning an income, this major illness means Amar and his family are struggling with day-to-day living costs and paying their loans from multiple sources including a large bank loan:

> *'We feel anxious because we need money to repay a bank loan… Now I have an injury, our income is dramatically lower and because of Covid-19, we don't get much money in overtime anyway. [My children]* left their children with me, so that they can go to work easily [and] send us money … *but we do not have enough food to eat. Sometimes, when I go to bed, there are many things appearing in my head and it is so hard to fall asleep. I always get anxious and it makes me feel pain inside my body but I do not tell my children about it because I never want them to worry about me. Only me and my wife know about all the problems … I tell her that I cannot sleep because I am thinking about income and debts and our problems'. (Amar, Village B)*

As Amar's testimony illustrates, the burden of payment takes its toll on debtors and their families and manifests in physical, mental and emotional ways. The physical demands of servicing debt are evidenced by both men and women describing that they have 'no choice' but to work even if it was 'hard', 'tiring', 'exhausting', or 'dangerous' and had harmful effects on their health and well-being – what Lenton and Mosley (2008) call the debt-ill-health spiral. For example, Laal, a blacksmith from Village C reports taking up risky work to ensure he can pay his household debts (categorised as high), visualised in Fig. 2 (and his associated narrative) from Arm 4:

> *'I've been working so hard to pay off the debt. The hardest work is rasping the steel at a very high place. I'm worried about it. I don't want to do it. I feel unsafe and I'm afraid of high places but I do it. It was also so hot up there and it affects my eyes. I'm afraid that I will be blind in the future but I'm more afraid if I'm jobless as I need money to pay the debt'. (Laal, Village C)*

Similarly, Champey from Village B reports how her and her husband work to exhaustion to pay their debts (categorised as high), a situation that feels inescapable:

> *'In the past, I did anything I could to get money to pay back [my debt]. It did not matter how hard the jobs were as long as I could earn money. I was so tired but I tried to work and never rested … I was so thin and only weighed 45kg. I thought about running back home but since we had so many debts, I could not do anything … Now my husband is working harder every day and rarely stays home … It is so difficult to repay the bank loans but we do not tell anyone, we keep it to ourselves. We think about it a lot, me and my husband. We cannot be as happy as we want. We do not go when people invite us out. We are afraid of getting sick and afraid of having no money if we do … We are so stressed and do not know what to do, it is so hard'. (Champey, Village B)*

Others experience the physical harms of over-indebtedness as toxic chemical exposure from fertilizers and pesticides which causes a range of acute health - one of the most significant hazards among agricultural workers in low-income countries (Jensen et al., 2011). Over-indebted farmers lament the need to use more and more chemicals to increase their yields in the face of a changing agrarian political economy and climatic difficulties just to help earn enough income to pay their debts.

Fig. 2. Photograph taken by Laal (Photo-elicitation, March 2021).

Transformations in their bodies as a result, ranges from skin problems and vomiting to chronic headaches and respiratory conditions under such 'chemical regimes' (Murphy, 2008). Prak's experience shared in photo-elicitation (Fig. 3), is typical of many farmers who are trying to maintain and increase their yields in order to pay their debt (categorised as high):

> *'It does affect my health to spray pesticides because the chemical substances are poisonous. After spraying the pesticide, I came home to shower with shampoo but it was itchy and it made my legs feel like they were burning'. (Prak, Village A).*

The ill-effects of working to pay debt extend to unpaid domestic activities mostly carried out by women, namely caring for their grandchildren so that their children can migrate for work and send remittances back. Women describe this work as 'exhausting', 'difficult' and 'a struggle' in qualitative methods. As Vimean, from a household categorised as having high debt, articulates:

> *'Sometimes I owe money for food and my children send me money and I pay the loans back. It difficult to look after my grandchild but I must be very patient and do what I can do as long as my daughter can earn money for us to pay the debt'. (Vimean, Village A)*

Data from Arm 2 corroborates this. Although women spend less overall time (11%) and energy (20%) on paid work compared to men who expend the highest percentage of their time (21%) and energy (43%) on employment, women are more involved than men in domestic/care work which represents the highest proportion of their time (21%) and total energy expenditure (35%) compared to men who spend just 8% of their time and 5% of their energy on such activities. This means that not only is care work time consuming, but also strenuous and energy intensive. Women are therefore conducting a double shift of work to service debt: productive and reproductive. This is especially the case for over-indebted women as although there is no significant difference in the time spent on activities between men in over-indebted and less indebted households, over-indebted women allocate a greater portion of their time towards productive labour which is more physically strenuous, at the expense of rest, sleep and community participation. In fact, over-indebted women spend half the time and energy over-indebted men do on engaging in such leisure activities. Boupha is from a household categorised as having high debt and describes this situation in relation to her photograph (Fig. 4):

> *'I always take care of my three grandchildren. Their parents can go to work or have their own business, so I should look after them. That's my life. I always do housework and take care of my grandchildren. This is counted as work to pay off the debt. It's my habit every day. I just tried to make the work faster. I never relax in the morning or afternoon. I feel tired'.*

Fig. 3. Photograph taken by Prak (Photo-elicitation, March 2021).

Fig. 4. Photograph taken by Boupha (Photo-elicitation, March 2021).

However, as Champey describes above, men too experience forms of social exclusion and many report that they spend less time with their families as a result of working to service debt.

Consequently, as well as physical and social suffering, the vast majority of study participants experience direct psychological and emotional suffering related to over-indebtedness, articulated as the local idiom of distress, 'thinking too much' (Iskander et al., 2023). This manifests in a range of ways such as headache, dizziness, stomach ache, loss of appetite, fatigue, heart distress and insomnia (e.g., both men and women surveyed experience 30–40 min of insomnia and sleeplessness a night, often related to financial worry). While this 'financial melancholia' (Davies et al., 2015) is felt by both men and women, the latter are often responsible for managing household finances, creating an additional amount of stress and anxiety for women like Da (from a household categorised as high in debt):

> *'I am the one who is responsible for everything related to debt. My husband doesn't manage the payments. When we need to borrow, it depends on me. I try to get money from this to there and from there to this, back and forth and in reverse for each debt fee. I am the one who responsible for all problems with debt in the family. When we lack of money like this I cannot sleep during the night. It keeps me awake all night with overthinking. When this issue happens, it really makes me have a headache or stomach ache and I cannot eat anything. We are running out of ideas. I don't know what else to do to pay the debt'. (Da, Village B)*

Overall, many participants experience serious suffering as a result of the burdens of debt payments, expressing lingering feelings of unhappiness', 'sadness', 'loss of control', 'shame', 'embarrassment', 'helplessness' and even 'emptiness'. Elsewhere, we have also shown how 'thinking too much' about debt also entails a kind of moral anguish as debtors feel unable to fulfil their obligations to others, whether families, neighbours, religious figures, or even debt providers, as a direct result of debt burdens (Iskander et al., 2023). As participants put it, debt is 'always in [people's] heads', effects 'all aspects of life' and is 'impossible to escape' from.

5. Conclusion

Our study corroborates what has been well documented elsewhere - that rural Cambodian households are increasingly overindebted – exceptionally so compared to other countries at similar development stages (World Bank, 2022). Against a backdrop of rapid economic and agrarian change, rural households, where the majority of the population

live, remain vulnerable to higher rates of poverty, threats to their livelihoods, and inadequate access to basic health and social care facilities. In such a debt-saturated country, where loan agencies are pervasive and pernicious, it is no surprise that 66% of our study households are in debt, with loans from MFIs/banks representing around 64% of debt taken out to cover both productive and non-productive purposes. In terms of the latter, the majority of our participants have current health issues, a significant proportion of which are 'major' illnesses that prevent them from working, and incur high OOPE to treat. Compounding their ill-health, we show how an inadequate nutritional landscape also means the majority are also facing some form of food insecurity and lack the necessary money to meet their nutritional needs. Crucially, debt presents a short-term coping strategy to meet such demanding health and food costs.

However, while debt offers some short-term relief, we also show how the subsequent costs to debtors and their families soon far outstrip any potential benefits. In a context where debt for social reproduction is so normalised, many debtors make a range of undue sacrifices to their food, treatment options and living standards, as they prioritise loan payments over meeting basic needs. Over time, this only exacerbates ill-health and well-being as people become over-indebted. With depleted 'social resilience' (Hall and Lamont, 2013), it is only through relying on friends, family, employers, government services or most worryingly of all, more loan institutions, that people manage life in the 'here and now'. As relations of dependency (Green and Estes, 2019) are renegotiated in the service of debt, people are trapped in never-ending cycle of economic, physical, psychological, emotional and moral suffering (Davies et al., 2015; Iskander et al., 2023). This is especially true for women who bear a disproportionate burden in servicing debt in this context.

Here, we have attempted to make visible the very corporeal effects that over-indebtedness is already having on people's bodies, lives and communities through the testimony and images that document their lived experiences. However, we also hope to draw attention to what remains potentially invisible, as poor social experiences often become incorporated biologically, over time, and are later expressed in longer-term population patterns of ill-health and well-being (Krieger, 1999). We, therefore, warn that, if left unacknowledged, over-indebtedness will likely hamper the government's aim of UHC. Without interventions that specifically target the rising debt crisis, the rural poor will continue to be sick of debt.

CRediT authorship contribution statement

Dalia Iskander: Writing – review & editing, Writing – original draft, Formal analysis. **Fiorella Picchioni:** Writing – review & editing, Writing – original draft, Visualization, Formal analysis. **Giacomo Zanello:** Writing – review & editing, Writing – original draft, Visualization, Formal analysis. **Vincent Guermond:** Writing – review & editing, Writing – original draft, Investigation, Formal analysis. **Katherine Brickell:** Writing – review & editing, Supervision, Project administration, Funding acquisition, Formal analysis, Conceptualization.

Ethics statement

Ethical approval was gained for the project through Royal Holloway on 22 February 2020 (application ID, 1983).

All procedures were performed in compliance with relevant laws and institutional guidelines. Free, informed prior consent was obtained from all participants involved in the study who were all aged over 18. The privacy rights of human subjects have been observed.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2025.117678.

Data availability

Data is available via the ReShare database (https://reshare.ukdataservice.ac.uk)

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