Resilient Ways of Eating on a Budget: Personal Informatics Use Among People With Low SES

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Abstract

It is known that people with low socioeconomic status (SES) face systemic disadvantages and often have to balance costs against health and eating decisions. Through a survey (N=316) deployed across the US and UK, we examine whether and how Personal Informatics (PI) tools support planning and coping practices among people with low SES. This work is intended as a prequel to exploring PI as a design space for supporting resilience. Our findings reveal a range of strategies used by respondents to source discounts, stretch food, adhere to budget constraints, pursue health goals, and support long-term skill development (e.g., learning to mentally budget). While some found engaging with tracked data discouraging during difficult periods, others adapted tracking into more personal and individualized practices, such as journaling. We discuss design implications for PI systems, including agentic approaches for integrated guidance, tracking that supports morale, and future work engaging broader stakeholders.

CCS Concepts

• **Human-centered computing** → **User centered design**; **Empirical studies in HCI**.

Keywords

healthy eating; resilience; budgeting; personal informatics

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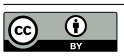

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1 Background and Motivation

Healthy eating is essential to long-term health and well-being. However, people with low socioeconomic status (SES) do not always get to prioritize a healthy diet over what is lower cost and energy-dense [37, 52]. This is a structural issue, owing to healthier foods being more expensive and not adequately filling for the price [13]. Historically, as a result, people with lower SES have been at an increased risk of chronic illness and disease [8, 12, 30]. This is an important disparity to address [48], and various interventions and designs have focused on prompting behavior change and improving health literacy among this population [9, 18, 29, 39, 41]. Of note, one study found that people with low SES were less likely to change their eating behaviors for preventive reasons due to immediate cost concerns [6]. Furthermore, following the Covid-19 pandemic and periods of high inflation, recent research showed that people with low SES had to carefully plan food purchasing decisions and experiment with new and resourceful ways of optimizing meals in relation to cost [25]. This tension between health goals and financial worries has been a prevalent theme across studies focused on healthy eating [22, 26], but comparatively few works have examined how people actively balance health decisions alongside ongoing financial constraints [14, 42].

Personal Informatics (PI) tools present an opportunity to support decision-making at this intersectional problem space. PI tools are those that help people collect, make sense of, and make decisions based on their data [15, 31]. In recent years, there has been growing interest in the different ways people track aspects of their lives, such as eating, finance, mood, and sleep [7, 10, 24, 32]. Advances in sensing technologies, AI and machine learning models, and wearable devices have made these practices easier and more seamless [11, 28, 33]. At the same time, people also employ analog means, such as bullet journaling [4] or keeping track of their expenses on paper [24]. When designing for people with low SES, although there are concerns that the "digital divide" [27] may limit how they fully experience or adopt some PI tools, prior literature also suggests that they stand to benefit from being introduced to these tools, especially through low-cost or accessible interventions that support managing health and everyday challenges [23, 43]. Therefore, we are motivated by the potential of PI tools to support the practices

of people with low SES who may be trying to eat on a budget while navigating ongoing cost constraints.

A guiding framework for our work is the notion of resilience, commonly defined as "adapting to adversity" or getting by when circumstances are difficult [19, 51]. We found resilience to be a fitting lens as it is strength-based [40, 50] and focuses on what people can do vs. what they cannot. For example, a prior study by Vyas with low-SES individuals showed how they were able to improve their economic conditions through DIY practices and making [49]. In this way, Vyas emphasized the role of low-SES individuals as self-reliant and creative contributors to society despite being under-resourced. A common criticism of resilience frameworks, however, is that they do not always address systemic issues and can unintentionally shift responsibility onto those most impacted [20]. Hart et al. argue that resilience research should go beyond understanding how people cope and incorporate a more social justice–oriented approach to challenge the structures that produce disadvantage and inequality [20]. We are motivated by this framing, and in our investigation, pay attention to the infrastructures and ecosystems that people with low SES must navigate as they balance health and cost.

In this paper, we ask the following questions:

RQ1: *How do people eat on a budget, and to what extent is healthy eating prioritised in this context?*

RQ2: *What practices of resilience exist, and how might personal informatics technologies support them?*

2 Methods

2.1 Survey Design

We designed a 35-question survey on Qualtrics[1] and deployed it through Prolific[2]. The survey consisted of seven sections: demographics; background questions on technology use and financial situation; a food insecurity measure; a food choice priority questionnaire; and three sections focused on how people tracked their eating and spending, and planned or budgeted grocery shopping.

As our target population was people with low SES, we incorporated the MacArthur Scale of Subjective Social Status [2, 44] into the survey. Through this scale, respondents placed themselves on a 10-rung ladder to indicate how they perceived their social status relative to others in the same area. Additionally, we included the USDA Household Food Security Survey Module [36] to assess respondents' food security status. Other key questions captured background information on device and internet access, financial difficulties experienced, and food choice priority rankings.

Free-text questions gathered further detail on the digital and analogue tools used to support tracking food and eating, spending, and eating on a budget. Respondents were asked about tools they currently used, tools used in the past, and the most useful tools overall to help them eat on a budget.

The survey was designed to take approximately 10–15 minutes to complete. The full survey instrument is available in the supplementary materials.

[1]https://www.qualtrics.com/
[2]https://www.prolific.com/

2.2 Recruitment and Ethics

We recruited adults residing in the UK or the US who were fluent in English, placed themselves on the bottom three rungs of the 10-rung MacArthur Scale, and had an approval rate of 95% or higher. We secured IRB approvals through Indiana University Bloomington and the University of Edinburgh to conduct this research. For completing the survey, UK respondents were compensated with £2.50 (GBP) and US respondents with $3.00 (USD).

2.3 Data Analysis

The survey included qualitative data through free-text questions and quantitative data through choice-based questions. In this work-in-progress paper, we focus on qualitative findings and incorporate statistical results to provide descriptive context.

For analysis, statistical summaries and visualizations were created using R[3]. Responses to free-text questions were exported to the Miro whiteboarding tool[4] and analyzed using affinity mapping to identify emergent themes. Through iterative discussions among the research team, these themes were further organized around action-based resilience strategies, which we present as our findings.

2.4 Respondents

Data collection took place in December 2022, during a period of high inflation and as COVID-19 transitioned from the pandemic to the endemic phase. We excluded respondents who reported an SES higher than 4 during the survey, allowing us to account for small changes in status between joining Prolific and completing the survey.

The final survey dataset included 316 respondents (159 US; 157 UK). Overall, 144 respondents identified as female (45.6%), 164 as male (51.9%), seven as non-binary or third gender (2.2%), and one preferred not to say (0.3%). The 25–34 age group represented the largest proportion of the sample (36.7%). Respondents reported a mean perceived SES of 2.94 ± 1.09. See Table 1 for additional respondent characteristics.

3 Findings

3.1 Characterizing the experience of eating on a budget

3.1.1 Marked by constrained access, careful saving, and sacrifices. Study respondents identified themselves as being on the lower end of the socioeconomic ladder (M = 2.94, SD = 1.09), and 69.3% of the sample fell into the USDA-defined "Low" or "Very Low" food security categories. This meant that, due to financial and resource limitations, respondents experienced reductions in food quality (low food security) and, in some cases, food quantity (very low food security) [35]. Respondents' qualitative comments from the survey add further context to what it means to live under these conditions. For example, US_R19 described how critical it was to stay within budget, carefully plan decisions, and sacrifice simple pleasures, such as dining out or buying a preferred drink:

> *"We have a limited number of food stamps and we live paycheck to paycheck so going over budget isn't*

[3]https://www.r-project.org/
[4]https://miro.com/

Table 1: Respondent characteristics (N = 316).

Characteristic	N (%)
Country	
United States of America	159 (50.3%)
United Kingdom	157 (49.7%)
Age group	
18–24	43 (13.6%)
25–34	116 (36.7%)
35–44	79 (25.0%)
45–54	43 (13.6%)
55–64	22 (7.0%)
65–74	13 (4.1%)
Education	
Secondary education or below	81 (25.6%)
Post-secondary / some college (no degree)	125 (39.6%)
College or University graduate	106 (33.5%)
Prefer not to say	4 (1.3%)
Summary measures (US & UK)	
Perceived SES (mean ± SD)	2.94 (1.09)
Food security status	
High/Marginal (0–1)	97 (30.7%)
Low (2–4)	82 (25.9%)
Very low (5–6)	137 (43.4%)

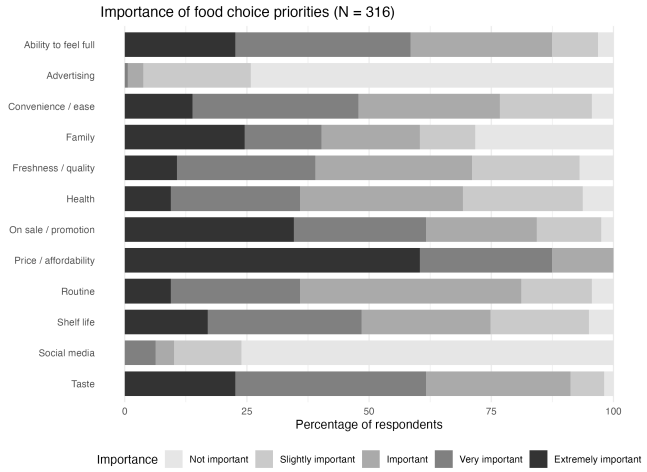

Figure 1: Importance of food choice priorities

> *acceptable and sometimes we have to go without certain foods or drinks. In this way we can plan when we want to experiment with new dishes and when we need to buy cheap ramen on other days. We always cook meals at home, usually from scratch, so we have to keep track of ingredients. We rarely eat outside the house unless it's someone's birthday and even then it would need to be carefully planned up to that point in order to spend the money." (US_R19)*

Similarly, US_R93 reported how managing expenses became a constant routine in their life: *"I am always budgeting, figuring out the best and cheapest way to fix meals and how much each item costs to continue doing it."* Another instance of sacrifice, this time motivated by care, was the case of UK_R69, who chose to skip certain meals so that their family member could eat better: *"I never eat lunch or breakfast, but spend most of my budget on ensuring my daughter eats well."*

3.1.2 Lowering cost is the top priority, and health is often not. When respondents were asked about their priorities when choosing foods (both meals and snacks), the top selections marked as "Extremely important" were (1) Price/affordability, (2) On sale/promotion, and (3) Ability to feel full (see Fig. 1). Notably, health was ranked lower by respondents. However, this did not always seem to be a straightforward trade-off, as we observed cases where respondents clearly cared about their health and wanted to pursue body-related goals but were unable to do so.

One prevalent reason was that respondents found healthy foods to be pricier and hence unsustainable in the long term. This is reflected in US_R19's account, where they described having to abandon a health journey in the interest of supporting their family:

> *"I have used notebooks and written in exactly what I ate that day and how many calories and carbs the food had. Several years ago it worked and I lost 70lbs on a low carb diet. However, I had to quit eating that way because it was too expensive to feed my family that kind of food; junk food is sadly cheaper, and I gained all the weight back rather quickly." (US_R19)*

US_R6's response was similar in that it also called out the unhealthiness of cheaper and convenient foods, but expressed that they were still trying to work within those constraints and eat healthier:

> *"Trying to eat healthier and lose weight from eating cheap and easy foods that aren't too healthy over the long run." (US_R6)*

3.1.3 Monitoring closely often impacts morale. In line with respondents' tight budgeting and careful planning around food decisions, many described tracking their spending and food practices through analog or digital means (elaborated further in section 3.2.4). However, a common challenge was that during especially trying times, respondents would lose morale, find it difficult to look at tracked data, and as a result, stop or pause tracking.

For example, US_R100 stated, *"I used to track budget some, now I just pay what I can, it's too depressing to see it all laid out, it's stressful."* UK_R5 expressed similar sentiments toward seeing the data, noting *"I used to keep track but hate looking now."* US_R48 described stopping tracking due to financial strain: *"I used to write every expense down and budget. I stopped because I don't have enough income for the bills. It's depressing to track."* Finally, US_R94 reflected on the difficulty of tracking under severe financial strain: *"I used to try and do this. But when you are super poor, it seems so futile. No matter how you massage the numbers, there just isn't enough."*

3.2 Resilient practices and strategies for navigating constraints

3.2.1 Proactively sourcing deals, discounts, and affordable food. Respondents were proactive in their efforts to find resources and access food more cheaply where possible. For this, they relied heavily on grocery stores, store-related technologies and advertising, as well as third-party services. Many respondents emphasized coupon and voucher use, describing how grocery store apps integrated with them to support tracking sales and applying discounts. For example, US_R43 said, *"I have the official app associated with the store (Kroger) that I usually shop with and I keep up to date on all coupons and sales."* Similarly, US_R147 noted that *"buying sale items and using coupons at Kroger is usually a good way to save money."*

Furthermore, respondents described cross-checking deals and sales across multiple sources and incorporating that information into their shopping decisions. For example, US_R37 explained how they coordinated apps, weekly advertisements, and list-making practices together: *"I check apps for any kind of special deals and coupons, I review the weekly ads, I make a list of what's on sale, and add the coupons in the app."*

Respondents also reported monitoring social media platforms like Facebook to pick up surplus food. For example, when answering the question on the most useful tools or technologies they used, UK_R137 reported, *"Free food on facebook which is given away by supermarkets due to shelf date expiring."* Similarly, respondents described using third-party services such as *Too Good To Go*[5], which connects people with discounted surplus food from local restaurants.

3.2.2 Stretching food and optimizing meals. Respondents were resourceful in how they made the most of what was available to them through strategies, such as choosing filling foods (e.g., US_R113), cooking at home to minimize energy use (e.g., UK_R117), growing food in their garden for cost- and health-effective eating (e.g., US_R93), and avoiding waste by repurposing leftovers (e.g., UK_R12).

To illustrate, US_R113 described beans as a satiating, healthy, long-lasting, and affordable food, explaining why it was a practical purchasing decision:

> *Buy foods like beans that are high in fiber so they make me feel full longer. They are healthy, reasonably priced, can make big meals that last a long time, and leftovers can be stored in the freezer and rotated with other meals so I don't get tired of them. (US_R113)*

Notably, respondents described how they used YouTube, forums, or social media platforms to learn strategies for stretching food and budgeting (e.g., US_R29, UK_R57, US_R66). For example, US_R66 described *"spending time in cooking communities to get better ideas of diverse but cheap foods,"* noting that *"the subreddit /r/eatcheapandhealthy is great."*

3.2.3 Planning, comparison, and learning from spending data. Respondents often had meticulous methods in place for managing money and savings, using PI tools to support these practices. For instance, some reported using their bank's websites or apps (e.g., US_R31, UK_R29), third-party services such as Mint, Emma, or Revolut (e.g., US_R115, UK_R99, UK_R70), simple spreadsheets, documents, or note-taking apps (e.g., US_R61, UK_R7, UK_R131), as well as pen and paper for more flexible or ledger-style tracking (e.g., US_R119, UK_R110, US_R140, UK_R48).

Three prevalent goals stood out as respondents described using these tools. First, respondents tracked or monitored expenses to take action or make changes to their habits. UK_R19, who described using a finances book to record expenses and decide how to allocate money, explained that *"At the end of the month i write down everything ive spent to see where i can cut back."* Similarly, US_R74 described using a journal to monitor spending habits, emphasizing its importance as a tool for identifying potential savings: *"I currently use a journal to count everytime I go to rhe market, or just spend in general. With my limited income, I try to see where I couls make cuts."*

Second, respondents sought to create a budget and adhere to it. For example, UK_R143, along with several others (e.g., UK_R26, UK_R123, US_R109, US_R79, US_R119), emphasized the importance of having a budget and sticking to it, noting *"I write down a budget for each day and try not to go over."* Some respondents also incorporated food purchasing directly into this budgeting process. US_R156 described listing meal ingredients alongside their costs, explaining: *"I list all the ingredients of my meals, and how much they cost. I mostly eat the less costly meals over and over again."*

Third, respondents wanted to compare to better understand prices, savings, and market patterns. UK_R149 described their approach as follows: *"I do this using two columns, when comparing own shop brands (i.e asda) to high street brands (i.e heinz).."* They emphasized how this helped them pay closer attention to price differences and be more mindful about their spending, noting that it *"allows me to work out what I can afford and save at the same time - it usually is a large difference and due to inflation I am mostly buying own supermarket brands."*

These goals and practices also often overlapped, as seen in the case of US_R156.

3.2.4 Tracking and personalizing health and well-being practices. Respondents used PI tools to self-manage a range of health needs (e.g., diabetes, food intolerances) and personal goals. In many cases, respondents were motivated by body- and nutrition-related goals, using diary approaches as well as apps such as MyFitnessPal (e.g., US_R110, US_R11, US_R86, UK_R126, UK_R99). For example, UK_R9 described regularly filling in a food diary to *"keep on top of my macronutrient content and energy balance. i am fat."* Similarly, UK_R149 described using MyFitnessPal to support multiple needs: *"to track what I eat daily, calories wise, read the nutrition values, and aim to ensure I am eating enough even when struggling with finances. I also pair this with my exercise goals."*

It was reported earlier that many respondents felt demotivated to engage in tracking when times were difficult (see Section 3.1.3). However, there were cases where respondents personalized or customized their tracking (whether for health or budgeting) to better align with their needs, and in the process turned the practice into something more rewarding and meaningful.

For example, US_R132 emphasized the aesthetic and motivational aspects of tracking, describing how they used *"cute small notebooks with motivational sayings"* and noting that they used gel

[5]https://www.toogoodtogo.com/

pens because they *"love the fluidity and looks of them."* This showed how tracking could be adapted into more enjoyable practices for a more sustained experience.

Similarly, US_R113 emphasized the use of inexpensive and reusable materials, describing how they used *"a tiny notebook from the Dollar Tree… You can buy these in a 3 pack for $1.25 last time I checked,"* along with pens they had owned for many years. Their response conveyed a sense of satisfaction in their resourcefulness, emphasizing that they *"always use cost effective tools."* US_R113 also described efforts to make tracking more uplifting, explaining that they were *"doing a habit tracker and wanted to make things look more cheerful,"* even while acknowledging that they sometimes fell out of the habit of tracking.

Other respondents, like US_R143 for example, showed themselves to be quite crafty, turning dissatisfaction with existing tools into creating their own set-up: *"When I decided to lose weight 12 years ago… I didn't like the food database… it was full of duplicates and incorrect information… I finally just gave up on it and set up my own spreadsheets and databases, and I still use those. I don't use any apps."*

3.2.5 Building skills for long-term sustainability. Respondents placed emphasis on developing long-term skills that helped them acquire, extend, or make the best use of their limited resources. Multiple respondents described calculating costs in their head (e.g., US_R23, UK_R77, UK_R122), which helped them make purchasing decisions quickly. Interestingly, in many cases this was an acquired skill. For example, UK_R102's response illustrates a transition from active tracking to being able to do it mentally: *"I did this to track my spending and stick to a budget and now i just do it off the top of my head."* In contrast, US_R32's response highlights how prolonged experience with a low budget shaped this ability: *"Practice and experience. I've been on a low budget for so long, that it's second nature."*

Another type of knowledge that respondents pointed to was cooking, both as a skill and as a means of being thrifty. For example, US_R94 emphasized that being a good cook meant that cheaper ingredients could still produce good meals: *"really the #1 thing is to learn to cook well. The better you can cook, the cheaper food you can get and it's still good."* Similarly, UK_R9 also described cooking as a skill that involved working creatively with cheaper or dehydrated ingredients: *"learning how to cook from cheap ingredients like lentils, tvp mince and other dehydrated sources of protein. not a technology but a skill."*

4 Discussion

4.1 Toward integrated budgeting and health support in PI

We began this work to learn more about the tension between financial constraints and healthy eating decisions, and our findings reiterate that this tension exists. Respondents used various analog and digital tools to balance cost and food, and to support resilient practices of sourcing, stretching, planning, comparison, adjustment, and learning. Cost had a major influence on what ingredients respondents could purchase, which grocery stores they could frequent, and how much variety they could incorporate into their diets. As a result, health goals and decisions were often de-prioritized as cost became the primary decision driver.

Therefore, moving toward more integrated support, people with low SES could benefit from greater decision guidance, especially when balancing multiple considerations alongside cost. A possible way forward may be through agentic systems. Recent work by BharaniNayagi et al. proposes AI agents that can manage multiple tasks such as shopping, meal planning, and cooking, and thus fulfill multiple goals in context-aware and personalized ways [5]. Similarly, work by Dillahunt et al., focused on food-insecure populations, suggests food-agentic technologies that can seamlessly facilitate healthy substitutions while taking cost into consideration at the point of purchase [14]. These approaches present interesting possibilities, including the potential to interweave government benefit constraints. Furthermore, over time, such support during decision-making and balancing trade-offs may enable reflection and learning– both of which are valuable to this population and are key aspects of PI [16].

4.2 Designing for morale, growth, and expression

When thinking about designing PI tools for resilient eating and budgeting, it is also important to consider the extreme low points of living under duress. Respondents from our study expressed how, at times, it was depressing to look at tracked financial data, and how this led to a loss of morale in the practice. Building on this, we suggest that tracking or technology support for people with low SES should not be framed as purely numbers- or consistency-based, but should also incorporate knowledge building, growth, and a sense of competence. For example, many respondents described feeling glad to have developed skills such as mentally budgeting, cooking efficiently, or finding thrifty ways to save money. Relatedly, there are community or government initiatives for low-income populations that focus on teaching cooking skills and food resource management [1, 17, 38]. Perhaps PI tools can be complementary to such efforts (whether self-initiated or supported by others) and enable the celebration of small wins, help people appreciate their progress, and prompt or nudge them toward food literacy.

A contrasting experience shared by other respondents was how they found meaning and joy in tracking by personalizing it and connecting it to their interests and pleasures (e.g., the aesthetic and DIY aspects of journaling). Therefore, it may also be fruitful to incorporate creative expression and self-care into tracking practices. A notable example is *Trackly*, developed in the context of multiple sclerosis self-management and inspired by bullet journaling, which lets users define goals and color pictorial trackers to track their progress [3]. We imagine that such approaches, which enable flexibility, individuality, and ownership of created data, may be appreciated and more sustainable for this population.

4.3 Engaging broader stakeholders towards socio-ecological resilience

We noticed that many of the resilient practices enacted by respondents were oriented around the self. However, these practices were often situated within, and shaped by, broader stakeholders and the

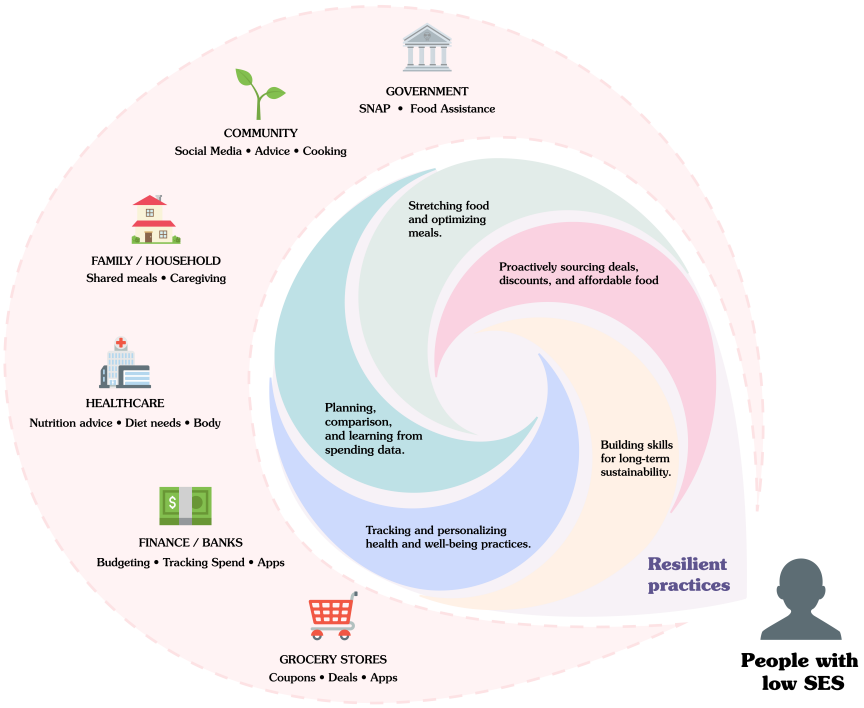

Figure 2: A preliminary socio-ecological map of study findings, including resilient practices enacted by respondents and their positioning alongside major stakeholders.

interconnected relationships between them. For example, respondents' reported use of tools showed how they often had to rely on infrastructures outside their control, such as sales or discounts set by grocery chains or corporations, apps or websites owned by these entities, and, in several cases, the limitations set by government assistance programs in determining what food they can access.

We find that a socio-ecological perspective may be particularly fitting for future work, as it emphasizes extending beyond the individual to include family, community, and societal levels [45, 46]. This perspective has been adopted in resilience research [47] and aligns with the critique put forth by Hart et al. [20], which argues that the next wave of resilience research should examine and challenge infrastructures to surface systemic influences and disadvantages. Furthermore, research by Murnane et al. uses this approach in a PI context and illustrates how collaborative and collective technology design can be better informed by understanding social experiences, interpersonal needs, and values [34]. Building on this, in Fig. 2, we make a preliminary effort to map the resilient practices used by study respondents and highlight some of the emergent stakeholders in this problem space.

We envision that there may be value in engaging more closely with these stakeholders. For example, grocery stores may serve as opportune spaces where collective PI systems can share awareness and knowledge through shopping information (e.g., what is healthy and affordable). Similarly, grassroots organizations, which typically support or run healthy eating programs [21], could facilitate the documentation and exchange of resilient strategies toward collective resilience. Dietitians or healthcare workers could also play a role in supporting nutrition-informed delivery within these systems.

5 Conclusion

We conducted a survey study (N=316) investigating the potential of PI tools as a design space to understand how people with low SES balance trade-offs and make decisions around eating and cost. Preliminary findings show a heavy reliance on grocery store infrastructures and the taxing nature of engaging with tracked data during difficult times. Additionally, the research revealed strategies used by people with low SES, including proactively sourcing sales and deals, stretching food and optimizing meals, planning for cost adherence and comparison, tracking and personalizing health, and valuing skill-building for long-term sustainability. Design implications such as better integration between budgeting and health through agentic systems, supporting morale through knowledge- or competence-based tracking and milestones, and incorporating self-care and expression when tracking under duress are discussed. Finally, a socio-ecological approach is proposed to guide future work on collective resilience through PI tools.

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References

[1] Omolola A. Adedokun, Paula Plonski, Brooke Jenkins-Howard, Debra B. Cotterill, and Ann Vail. 2018. *Healthy Choices for Every Body* Adult Curriculum Improves Participants' Food Resource Management Skills and Food Safety Practices. *Journal of Nutrition Education and Behavior* 50, 6 (June 2018), 638–644. doi:10.1016/j.jneb.2018.02.005

[2] Nancy E. Adler, Elissa S. Epel, Grace Castellazzo, and Jeannette R. Ickovics. 2000. Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women. *Health Psychology* 19, 6 (2000), 586–592. doi:10.1037/0278-6133.19.6.586

[3] Amid Ayobi, Paul Marshall, and Anna L. Cox. 2020. Trackly: A Customisable and Pictorial Self-Tracking App to Support Agency in Multiple Sclerosis Self-Care. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20)*. Association for Computing Machinery, New York, NY, USA, 1–15. doi:10.1145/3313831.3376809

[4] Amid Ayobi, Tobias Sonne, Paul Marshall, and Anna L. Cox. 2018. Flexible and Mindful Self-Tracking: Design Implications from Paper Bullet Journals. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. Association for Computing Machinery, New York, NY, USA, 1–14. doi:10.1145/3173574.3173602

[5] S. BharaniNayagi, Madhuaravind P, Giritharan D, Harish M, and Mouneesh R. 2025. AI-Powered Smart Pantry for Predictive Meal Planning and Food Waste Minimization. In *2025 5th International Conference on Evolutionary Computing and Mobile Sustainable Networks (ICECMSN)*. 1733–1739. doi:10.1109/ICECMSN68058.2025.11382710

[6] Andrea J. Bukman, Dorit Teuscher, Edith J. M. Feskens, Marleen A. van Baak, Agnes Meershoek, and Reint Jan Renes. 2014. Perceptions on healthy eating, physical activity and lifestyle advice: opportunities for adapting lifestyle interventions to individuals with low socioeconomic status. *BMC Public Health* 14, 1 (Oct. 2014), 1036. doi:10.1186/1471-2458-14-1036

[7] Clara Caldeira, Yu Chen, Lesley Chan, Vivian Pham, Yunan Chen, and Kai Zheng. 2018. Mobile apps for mood tracking: an analysis of features and user reviews. *AMIA Annual Symposium Proceedings* 2017 (April 2018), 495–504. https://pmc.ncbi.nlm.nih.gov/articles/PMC5977660/

[8] Ann E. Caldwell and R. Drew Sayer. 2019. Evolutionary considerations on social status, eating behavior, and obesity. *Appetite* 132 (Jan. 2019), 238–248. doi:10.1016/j.appet.2018.07.028

[9] Beenish M. Chaudhry, Christopher Schaefbauer, Ben Jelen, Katie A. Siek, and Kay Connelly. 2016. Evaluation of a Food Portion Size Estimation Interface for a Varying Literacy Population. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)*. Association for Computing Machinery, New York, NY, USA, 5645–5657. doi:10.1145/2858036.2858554

[10] Chia-Fang Chung, Elena Agapie, Jessica Schroeder, Sonali Mishra, James Fogarty, and Sean A. Munson. 2017. When Personal Tracking Becomes Social: Examining the Use of Instagram for Healthy Eating. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17)*. Association for Computing Machinery, New York, NY, USA, 1674–1687. doi:10.1145/3025453.3025747

[11] Stefany Cruz, Alexander Redding, Connie W. Chau, Claire Lu, Julia Persche, Josiah Hester, and Maia Jacobs. 2023. EquityWare: Co-Designing Wearables With And For Low Income Communities In The U.S.. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*. Association for Computing Machinery, New York, NY, USA, 1–18. doi:10.1145/3544548.3580980

[12] Caitlin Daniel. 2020. Is healthy eating too expensive?: How low-income parents evaluate the cost of food. *Social Science & Medicine* 248 (March 2020), 112823. doi:10.1016/j.socscimed.2020.112823

[13] Nicole Darmon and Adam Drewnowski. 2015. Contribution of food prices and diet cost to socioeconomic disparities in diet quality and health: a systematic review and analysis. *Nutrition Reviews* 73, 10 (Oct. 2015), 643–660. doi:10.1093/nutrit/nuv027

[14] Tawanna R Dillahunt, Michelle Sawwan, Danielle Wood, Brianna L Wimer, Ann-Marie Conrado, Heather Eicher-Miller, Alisa Zornig Gura, and Ronald Metoyer. 2023. Understanding Food Planning Strategies of Food Insecure Populations: Implications for Food-Agentic Technologies. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*. Association for Computing Machinery, New York, NY, USA, 1–22. doi:10.1145/3544548.3581568

[15] Daniel A. Epstein. 2015. Personal informatics in everyday life. In *Adjunct Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2015 ACM International Symposium on Wearable Computers (UbiComp/ISWC'15 Adjunct)*. Association for Computing Machinery, New York, NY, USA, 429–434. doi:10.1145/2800835.2801643

[16] Daniel A. Epstein, An Ping, James Fogarty, and Sean A. Munson. 2015. A lived informatics model of personal informatics. In *Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp '15)*. Association for Computing Machinery, New York, NY, USA, 731–742. doi:10.1145/2750858.2804250

[17] Teresa M. Garvin, Alethea Chiappone, Lisa Boyd, Katie Stern, Jill Panichelli, Leigh Ann Edwards Hall, and Amy L. Yaroch. 2019. Cooking Matters Mobile Application: a meal planning and preparation tool for low-income parents. *Public Health Nutrition* 22, 12 (Aug. 2019), 2220–2227. doi:10.1017/S1368980019001101

[18] Andrea Grimes, Vasudhara Kantroo, and Rebecca E. Grinter. 2010. Let's play! mobile health games for adults. In *Proceedings of the 12th ACM international conference on Ubiquitous computing (UbiComp '10)*. Association for Computing Machinery, New York, NY, USA, 241–250. doi:10.1145/1864349.1864370

[19] Xinning Gui, Yuhan Luo, Xianghua(Sharon) Ding, Saeed Abdullah, Emma Dixon, and Shaowen Bardzell. 2023. Designing for and Reflecting upon Resilience in Health and Wellbeing. In *Companion Publication of the 2023 ACM Designing Interactive Systems Conference (DIS '23 Companion)*. Association for Computing Machinery, New York, NY, USA, 135–137. doi:10.1145/3563703.3591456

[20] Angie Hart, Emily Gagnon, Suna Eryigit-Madzwamuse, Josh Cameron, Kay Aranda, Anne Rathbone, and Becky Heaver. 2016. Uniting Resilience Research and Practice With an Inequalities Approach. *Sage Open* 6, 4 (Oct. 2016), 2158244016682477. doi:10.1177/2158244016682477

[21] Sara Heitlinger, Nick Bryan-Kinns, and Janis Jefferies. 2013. Sustainable HCI for grassroots urban food-growing communities. In *Proceedings of the 25th Australian Computer-Human Interaction Conference: Augmentation, Application, Innovation, Collaboration (OzCHI '13)*. Association for Computing Machinery, New York, NY, USA, 255–264. doi:10.1145/2541016.2541023

[22] Sander Hermsen, Alex van Kraaij, and Guido Camps. 2022. Low– and Medium–Socioeconomic-Status Group Members' Perceived Challenges and Solutions for Healthy Nutrition: Qualitative Focus Group Study. *JMIR Human Factors* 9, 4 (Dec. 2022), e40123. doi:10.2196/40123

[23] Jina Huh, Jejo Koola, Alejandro Contreras, Alanah KP Castillo, Melissa Ruiz, Keely G. Tedone, Melissa Yakuta, and Melody K. Schiaffino. 2018. Consumer Health Informatics Adoption among Underserved Populations: Thinking beyond the Digital Divide. *Yearbook of Medical Informatics* 27, 1 (Aug. 2018), 146–155. doi:10.1055/s-0038-1641217

[24] Joseph Jofish Kaye, Mary McCuistion, Rebecca Gulotta, and David A. Shamma. 2014. Money talks: tracking personal finances. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14)*. Association for Computing Machinery, New York, NY, USA, 521–530. doi:10.1145/2556288.2556975

[25] Joya A. Kemper, Ariadne Beatrice Kapetanaki, Fiona Spotswood, Rajshri Roy, Hela Hassen, Anthonia Ginika Uzoigwe, and 'Ilaisaane M. E. Fifita. 2023. Food practices adaptation: Exploring the coping strategies of low-socioeconomic status families in times of disruption. *Appetite* 186 (July 2023), 106553. doi:10.1016/j.appet.2023.106553

[26] Danish U. Khan, Swamy Ananthanarayan, An T. Le, Christopher L. Schaefbauer, and Katie A. Siek. 2012. Designing mobile snack application for low socioeconomic status families. In *2012 6th International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth) and Workshops*. 57–64. doi:10.4108/icst.pervasivehealth.2012.248692 ISSN: 2153-1641.

[27] Kibum Kim. 2005. Challenges in HCI: digital divide. *XRDS* 12, 2 (Dec. 2005), 2. doi:10.1145/1144375.1144377

[28] Albrecht Kurze, Andreas Bischof, Sören Totzauer, Michael Storz, Maximilian Eibl, Margot Brereton, and Arne Berger. 2020. Guess the Data: Data Work to Understand How People Make Sense of and Use Simple Sensor Data from Homes. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20)*. Association for Computing Machinery, New York, NY, USA, 1–12. doi:10.1145/3313831.3376273

[29] Jeroen Lakerveld, Joreintje D. Mackenbach, Femke de Boer, Boris Brandhorst, Jacqueline E. W. Broerse, Gert-Jan de Bruijn, Gerda Feunekes, Marleen Gillebaart, Marjolein Harbers, Jody Hoenink, Michel Klein, Frederike Mensink, Cédric Middel, Denise T. D. de Ridder, Femke Rutters, Ivonne Sluijs, Yvonne T. van der Schouw, Tjerk Jan Schuitmaker, Saskia J. Te Velde, Elizabeth Velema, Wilma Waterlander, Johannes Brug, and Joline W. J. Beulens. 2018. Improving cardiometabolic health through nudging dietary behaviours and physical activity in low SES adults: design of the Supreme Nudge project. *BMC public health* 18, 1 (July 2018), 899. doi:10.1186/s12889-018-5839-1

[30] Tammy Leonard, Amy E. Hughes, and Sandi L. Pruitt. 2017. Understanding How Low–Socioeconomic Status Households Cope with Health Shocks: An Analysis of Multisector Linked Data. *The ANNALS of the American Academy of Political and Social Science* 669, 1 (Jan. 2017), 125–145. doi:10.1177/0002716216680989

[31] Ian Li, Anind Dey, Jodi Forlizzi, Kristina Höök, and Yevgeniy Medynskiy. 2011. Personal informatics and HCI: design, theory, and social implications. In *CHI '11 Extended Abstracts on Human Factors in Computing Systems (CHI EA '11)*. Association for Computing Machinery, New York, NY, USA, 2417–2420. doi:10.1145/1979742.1979573

[32] Wanyu Liu, Bernd Ploderer, and Thuong Hoang. 2015. In Bed with Technology: Challenges and Opportunities for Sleep Tracking. In *Proceedings of the Annual Meeting of the Australian Special Interest Group for Computer Human Interaction (OzCHI '15)*. Association for Computing Machinery, New York, NY, USA, 142–151. doi:10.1145/2838739.2838742

[33] Lena Mamykina, Daniel A. Epstein, Predrag Klasnja, Donna Sprujt-Metz, Jochen Meyer, Mary Czerwinski, Tim Althoff, Eun Kyoung Choe, Munmun De Choudhury, and Brian Lim. 2022. Grand Challenges for Personal Informatics and AI. In *Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing*

Systems (CHI EA '22). Association for Computing Machinery, New York, NY, USA, 1–6. doi:10.1145/3491101.3503718

[34] Elizabeth L. Murnane, Tara G. Walker, Beck Tench, Stephen Voida, and Jaime Snyder. 2018. Personal Informatics in Interpersonal Contexts: Towards the Design of Technology that Supports the Social Ecologies of Long-Term Mental Health Management. *Proc. ACM Hum.-Comput. Interact.* 2, CSCW (Nov. 2018), 127:1–127:27. doi:10.1145/3274396

[35] United States Department of Agriculture. 2026. Food Security in the U.S. - Measurement. Retrieved Feb 23, 2026 from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement

[36] United States Department of Agriculture. 2026. Food Security in the U.S. - Survey Tools. Retrieved Feb 22, 2026 from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools

[37] Shelly M. Palmer, Simon T. Knoblauch, Donna M. Winham, Molly B. Hiller, and Mack C. Shelley. 2020. Putting Knowledge into Practice: Low-Income Women Talk about Food Choice Decisions. *International Journal of Environmental Research and Public Health* 17, 14 (July 2020). doi:10.3390/ijerph17145092

[38] Jennifer A. Pooler, Ruth E. Morgan, Karen Wong, Margaret K. Wilkin, and Jonathan L. Blitstein. 2017. *Cooking Matters for Adults* Improves Food Resource Management Skills and Self-confidence Among Low-Income Participants. *Journal of Nutrition Education and Behavior* 49, 7 (July 2017), 545–553.e1. doi:10.1016/j.jneb.2017.04.008

[39] Amber Ronteltap, Andrea J. Bukman, Gera E. Nagelhout, Roel C. J. Hermans, Karen Hosper, Annemien Haveman-Nies, Remko Lupker, and Catherine A. W. Bolman. 2022. Digital health interventions to improve eating behaviour of people with a lower socioeconomic position: a scoping review of behaviour change techniques. *BMC Nutrition* 8, 1 (Dec. 2022), 145. doi:10.1186/s40795-022-00635-3

[40] D. Saleebey. 1996. The strengths perspective in social work practice: extensions and cautions. *Social Work* 41, 3 (May 1996), 296–305.

[41] Christopher L. Schaefbauer, Danish U. Khan, Amy Le, Garrett Sczechowski, and Katie A. Siek. 2015. Snack Buddy: Supporting Healthy Snacking in Low Socioeconomic Status Families. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*. Association for Computing Machinery, New York, NY, USA, 1045–1057. doi:10.1145/2675133.2675180

[42] K. A. Siek and J. Maitland. 2010. Studying the Place of Technology to Lower Financial Barriers for Dietary Change. *Methods of Information in Medicine* 49, 1 (2010), 74–80. doi:10.3414/ME09-02-0004

[43] Jaisie Sin, Rachel L. Franz, Cosmin Munteanu, and Barbara Barbosa Neves. 2021. Digital Design Marginalization: New Perspectives on Designing Inclusive Interfaces. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*. Association for Computing Machinery, New York, NY, USA, 1–11. doi:10.1145/3411764.3445180

[44] Stanford SPARQtools. n.d.. MacArthur Scale of Subjective Social Status – Adult Version. Retrieved Feb 22, 2026 from https://sparqtools.org/mobility-measure/macarthur-scale-of-subjective-social-status-adult-version/

[45] Franziska Tachtler, Reem Talhouk, Toni Michel, Petr Slovak, and Geraldine Fitzpatrick. 2021. Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*. Association for Computing Machinery, New York, NY, USA, 1–19. doi:10.1145/3411764.3445470

[46] Xinru Tang, Gabriel Lima, Li Jiang, Lucy Simko, and Yixin Zou. 2025. Beyond "Vulnerable Populations": A Unified Understanding of Vulnerability From A Socio-Ecological Perspective. *Proc. ACM Hum.-Comput. Interact.* 9, 2 (May 2025), CSCW037:1–CSCW037:30. doi:10.1145/3710935

[47] Michael Ungar. 2011. The social ecology of resilience: addressing contextual and cultural ambiguity of a nascent construct. *The American Journal of Orthopsychiatry* 81, 1 (Jan. 2011), 1–17. doi:10.1111/j.1939-0025.2010.01067.x

[48] United Nations. n.d.. Goal 2: Zero Hunger. Retrieved Feb 23, 2026 from https://www.un.org/sustainabledevelopment/hunger/

[49] Dhaval Vyas. 2020. Life Improvements: DIY in Low Socio-economic Status Communities. In *Companion Publication of the 2020 Conference on Computer Supported Cooperative Work and Social Computing (CSCW '20 Companion)*. Association for Computing Machinery, New York, NY, USA, 407–412. doi:10.1145/3406865.3418325

[50] Dhaval Vyas and Tawanna Dillahunt. 2017. Everyday Resilience: Supporting Resilient Strategies among Low Socioeconomic Status Communities. *Proc. ACM Hum.-Comput. Interact.* 1, CSCW (Dec. 2017), 105:1–105:21. doi:10.1145/3134740

[51] Dhaval Vyas, Stephen Snow, Margot Brereton, Uwe Dulleck, and Xavier Boyen. 2015. Being Thrifty on a $100K Wage: Austerity in Family Finances. In *Proceedings of the 18th ACM Conference Companion on Computer Supported Cooperative Work & Social Computing (CSCW'15 Companion)*. Association for Computing Machinery, New York, NY, USA, 167–170. doi:10.1145/2685553.2698998

[52] Kristen Wiig and Chery Smith. 2009. The art of grocery shopping on a food stamp budget: factors influencing the food choices of low-income women as they try to make ends meet. *Public Health Nutrition* 12, 10 (Oct. 2009), 1726–1734. doi:10.1017/S1368980008004102