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Inflation hardship, gender, and mental health

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A B S T R A C T

Inflation hit a 40 year high in the United States in 2022, yet the impact of inflation related hardships on distress is poorly understood, particularly the impact on women, whose income is already more limited. Using data from the US Household Pulse Survey (September–November 2022), we test whether exposure to inflation hardships is associated with greater distress and whether this association is moderated by gender (n = 119,531). We draw on a list of eighteen inflation related hardships (e.g., purchasing less food, working additional jobs, delaying medical treatment) to construct an ordinal measure of exposure to inflation hardship ranging from "no inflation hardship" to "five or more inflation hardships." We observe that an increasing number of inflation hardships is associated with higher levels of distress. We find no evidence of gender differences in the magnitude of that association at lower levels of inflation hardship (four inflation hardships or less). However, our findings suggest that exposure to five or more inflation hardships is more strongly associated with distress among men compared to women. The current study provides new insights into the cumulative burden of inflation hardships on mental health and the role that gender plays in this association.

Inflation hit a 40-year high in 2022 (Duffy, 2022) with the Consumer Price Index increasing by 7.1% in November 2022 compared to a year earlier (Smialek, 2022). As a result, inflation has placed a substantial economic burden on people in the United States, including higher grocery, heating and other 'essential' bills, and decreased savings (G. Cohen, 2022; Jones, 2022; Pew Research Center, 2022; Reinicke, 2022). These burdens can also result in food insecurity, putting off medical treatment, and a host of other stressful circumstances (Wu et al., 2023). In this study, we engage with the notion that inflation related hardships may increase distress, that is symptoms of depression and anxiety, in the population. We test whether there is an association between inflation related behaviors, decisions, and tradeoffs and experiences of distress. We are also interested in whether gender moderates the association between inflation hardship and distress. On the one hand, women may experience greater distress in response to inflation hardships than men, in part because women have fewer socioeconomic resources than men (Blau & Kahn, 2007) and thus will have less ability to cope with inflation than men. On the other hand, the experience of inflation hardship may be more distressing for men than women due to financial pressures often placed on men in U.S. society (Hitsch et al., 2010; Parker & Stepler, 2017; Qian, 2017; Walter et al., 2020). We expand on these hypotheses below. It is important to understand the relationship between inflation hardship, gender, and mental health because inflation hardship has the potential to exacerbate preexisting health inequalities.

1. Background

The relationship between socioeconomic conditions, stress exposure, and health is very well established (S. Cohen et al., 2006; McEwen & Gianaros, 2010; Pearlin, 1999; Schwartz & Meyer, 2010; R. J. Turner, 2013). The general social determinants of health literature provides frameworks, models, and theories describing the process through which income, education, race, gender, and other markers of social position (and therefore markers of material resources and 'everyday lived experiences') are associated with health through multiple pathways, including notably through physiological and psychological stress processes (S. Cohen & Janicki-Deverts, 2012; Seyle, 1974). From the sociological literature, the stress process framework emphasizes the role of socioeconomic conditions on both the burden of stressful experiences and the resources to cope with experiences of stress (Pearlin, 1999; Thoits, 2010; R. J. Turner, 2013). Finally, biological and physiological research has developed a sense of the pathways in the brain and body that are involved in perceiving and producing stress reactions (McEwen, 2004, 2007). Individuals who experience chronic exposure to financial hardship and other sources of stress suffer increased wear-and-tear on their brains and bodies, in part due to repeated activation of the stress response, which ultimately results in increased risk of poor health and mortality (S. Cohen & Janicki-Deverts, 2012; DeAngelis, 2020; Hicken et al., 2014; McEwen, 2007).

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A large body of work has employed these frameworks to examine the association between socioeconomic conditions, stress exposure, and mental and physical health (Almeida et al., 2005; Baum et al., 1999; S. Cohen et al., 2006; Kessler et al., 1987; McEwen & Gianaros, 2010; Pearlin et al., 1981; R. J. Turner & Avison, 2003). Most germane to the current study is the literature that documents not only how mental well-being is affected by one's general socioeconomic circumstances, but how this association manifests in relation to contemporary macroeconomic conditions. Several studies have examined the mental health impact of the Great Recession (Burgard et al., 2012, 2013; Houle & Light, 2017; Koltai & Stuckler, 2020; Wilkinson, 2016). For example, Koltai and Stuckler (2020) consider the impact of recession-related hardships (e.g., cut back on spending, increased credit debt, missed rent payment, moved in with family, job loss) on psychological distress, finding that greater exposure to recession-related hardships was associated with higher levels of psychological distress.

We extend the literature on socioeconomic conditions and health, and particularly the literature on macroeconomic conditions and health, by examining the role of experiences associated with the 2022 rapid rise in inflation. It should be noted that the context in which inflation is occurring comes at the heels of unprecedented circumstances from the COVID-19 Pandemic (e.g., lockdowns, social distancing measures, economic shutdowns, etc.). It is within this context that Americans have been exposed to record high inflation rates. The experience of two macro-level stressors in a relatively short period of time has resulted in long-term exposure to stressful and uncertain circumstances that have challenged Americans' ability to navigate their day-to-day lives. The recent rise in inflation has created a variety of circumstances that may produce stress. For instance, inflation makes everyday necessities and everyday life more expensive. A 2022 Pew survey indicates that 70 percent of Americans view inflation as the biggest problem facing the country (Doherty & Gomez, 2022), outpacing concerns about the affordability of health care (55 percent) and violent crime (54 percent). Indeed, evidence suggests that food price inflation has increased by 11.8 percent and energy services, such as electricity and gas increased by 15.6 percent (U.S. Bureau of Labor Statistics, 2023) from December 2021 to December 2022. These increases in the price of basic goods and services challenge individuals' ability to meet their everyday needs and often, this requires individuals' to make difficult decisions and tradeoffs about how to spend (and conserve) money (Jones, 2022; Nationwide, 2022; Rosenbaum, 2022). This can mean facing food insecurity, limiting medical treatments, and other undesirable circumstances. The difficult financial decisions that individuals are forced to make due to inflation as well as the conditions produced by those decisions may put individuals at risk for higher levels of distress. Although prior research has not examined the association between inflation hardships and distress, a related body of research on general financial strains and/or recession related hardships document the negative mental health consequences of such experiences (Boen & Yang, 2016; Brenner, 1987; Burgard et al., 2013; Butterworth et al., 2009; Forbes & Krueger, 2019; Kahn & Pearlin, 2006; Kiely et al., 2015; Koltai & Stuckler, 2020; Lynch et al., 1997; McInerney et al., 2013; Wilkinson, 2016). Taken together, we hypothesize that the 2022 rise in inflation, and the associated decisions, behaviors, and tradeoffs it has induced, have acted as stressors, which may be associated with experiences of distress.

In the current study, we examine a measure of inflation related hardships. We define inflation hardships as strains associated with increases in the price of goods and services. Inflation is a macroeconomic phenomenon that is a precursor to financial strain. The measure of inflation hardship we employ in the current study captures the subjective experience of inflation reported by individuals. Inflation related hardships represent the individual experience of financial strain resulting from inflation, a macroeconomic precursor. The subjective experience of inflation captures the meaning people ascribe to these larger macroeconomic changes and thus taps into a distinct domain of financial experience.

We also hypothesize that the association between inflation hardships on mental health may vary by gender. The gender system in the U.S. differentially allocates power and resources based on whether one is categorized as a man or a woman (Homan, 2019). Because social relations are organized around the gender system, individuals learn and internalize culturally defined gender norms that in turn construct one's gender identity (Ridgeway, 2009). In this paper, we posit that one's gender identity may shape how one responds to inflation hardship because the way individuals understand themselves is influenced by cultural expectations attached to different gender groups (Rosenfield et al., 2000; Simon, 1992; Thoits, 1986; Wood & Eagly, 2015). Further, culturally defined stereotypes tied to gender identities are associated with cognitive, behavioral, and affective styles for men and women (Kiecolt et al., 2019). It is also possible that structural features of the gender system related to access to economic resources, may play a role in how men vs. women respond to inflation hardships. As such, we propose two distinct perspectives on how gender may moderate the association between inflation hardships and mental health. On one hand, inflation hardships may be more harmful for women than men because women have less income and less wealth and thus it may be harder for women to cope with the rising prices associated with inflation. Other factors such as the concentration of poverty among women (Congressional Research Service, 2021) as well as the greater unpaid care burden placed on women potentially make women vulnerable to inflation hardships (Ferrant et al., 2014; Stanfors et al., 2019). Indeed, some research finds that financial strains are more harmful to the mental health of women relative to men (Dregan & Armstrong, 2009; Keith, 1993). Further evidence from other countries (e.g. UK, Spain, and Finland) suggest that economic crises have stronger negative effects on the mental health of women than men (Glonti et al., 2015). In addition, women may be more aware of inflation than men because women are more likely to do the household grocery shopping (D'Acunto et al., 2021; Ranyard et al., 2008) and as a result may be exposed to increasing prices more frequently than men.

On the other hand, a second perspective posits that inflation hardships would be more harmful to men than women. Stereotypical conceptions of masculinity require men to be economically stable (Connell & Messerschmidt, 2005) and breadwinners in the context of the family (Doucet & Lee, 2014; Townsend, 2010). In addition, economic success is closely tied to masculine identities, while feminine identities are often less associated with financial success, with female incomes often being considered secondary in the context of romantic relationships and the family (Bernard, 1981; Hakim, 1995; Hochschild & Machung, 1989). Evidence from a nationally representative survey conducted in 2017 found that while 71% Americans believe that a good husband/partner must be able to support a family financially, only 32% believed this to be true for a good wife/partner (Parker & Stepler, 2017). As such, the stress of inflation may be particularly salient for men because the inability to purchase certain goods and services may undermine their feeling of self-worth. It should be noted that the experience of inflation hardship may be harmful for both married and single men, due to the fact that men, regardless of marital status, are often evaluated based on their financial resources (Hitsch et al., 2010; Parker & Stepler, 2017; Qian, 2017; Walter et al., 2020). Moreover, evidence from prior research finds that in general men are more likely than women to judge their value in terms of success in the public sphere, whereas women are more susceptible to hardships that are tied to interpersonal relationships (Denton et al., 2004). In addition, hardships such as unemployment (Artazcoz et al., 2004; Kopasker et al., 2018), economic insecurity (Kopasker et al., 2018), and housing foreclosures (Houle & Light, 2017) are more mentally distressing for men than woman. In the wake of the Great Recession, a historic time of reductions in employment, earnings, assets, and income (Hoynes et al., 2012), research showed that men reported poorer mental health during this period relative to pre-recession (i.e., 2008), while there were no significant changes in the mental health of women over this period (Katikireddi et al., 2012; Thomson et al., 2018).

Given the breadth of evidence, it is possible that inflation hardships will be more deleterious to the mental health of men than women.

The present study has two aims. First, we examine the relationship between inflation hardships and mental health, specified as no inflation hardship, one inflation hardship, two inflation hardships, three inflation hardships, four inflation hardships, or five or more inflation hardships. Second, we test whether gender modifies the association between inflation hardships and distress.

2. Data

Data were obtained from the Household Pulse Survey (HPS), an online, probability-based survey of US adults aged 18 or older conducted by the U.S. Census Bureau to rapidly measure the impacts of the COVID-19 pandemic on American households across the country from a social and economic perspective. We included data from Phase 3.6 of HPS fielded from September 14, 2022 to September 28, 2022, October 5, 2022 to October 17, 2022, and November 2, 2022 to November 14, 2022. The data include a total sample size of 154,430. The listwise deletion method was adopted to handle the missing data, resulting in a sample size of 119, 531.[1] A sensitivity analysis was conducted using multiple imputation and results based on the full sample with imputed values were consistent with the results from the sample that uses listwise deletion to remove missing data. In the current study, estimates are weighted to adjust for nonresponse and to match Census Bureau estimates of the population by age, sex, race and ethnicity, and educational attainment. To understand how the HPS sample compares to nationally representative estimates, we compare descriptive statistics from the analytic sample to the 2021 American Community Survey (ACS). We note that the HPS respondents have greater educational attainment, are more likely to be non-Hispanic White, and more likely to be married compared to ACS respondents.

Distress was measured with four items from the Patient Health Questionnaire for anxiety and depression (PHQ-4). Respondents were asked "Over the last two weeks, how often have you been bothered by": feeling nervous, anxious, or on edge, not being able to control worrying, having little interest or pleasure in doing things, and feeling down, depressed, or hopeless. The response items include not at all, several days, more than half the days, nearly every day. Responses were summed to produce an index of distress symptoms from 0 to 16 ($\alpha = 0.92$). This measure of distress is well-validated and captures symptoms of anxiety and depression (Khubchandani et al., 2016; Kroenke et al., 2009).[2]

Experiences of inflation were determined by asking respondents "What changes, if any, have you made to cope with the increases in prices? Select all that apply." These responses contained 18 inflation hardships including: shop stores that offer lower prices, look for sales and/or use coupons, switch from name brand to generic products, purchased less fresh produce and/or meat, go out to eat less often or order food for delivery less often, cancel or reduce subscription services, cancel or decreases plan to attend events, drive less or change mode of transportation, delay major purchases, delay medical treatment, work additional job(s)/shift(s) to supplement income, contribute less to savings and/or retirement accounts, increase use of credit cards, landlords, and/or pawnshops, decrease use of utilities, move to less expensive housing, ask friends/and or family for help, change or reduce plans for childcare arrangements to save money, utilize benefits from charities, and other. Inflation hardship is a sum of 18 items. The minimum number of hardships respondents experienced was 0 and the maximum was 18. We re-coded inflation hardships into six categories – no inflation hardships (reference), one inflation hardship, two inflation hardships, three inflation hardships, four inflation hardships, five or more inflation hardships. We employed a categorical count approach to measure inflation hardship for two reasons. First, the measure is comprised of yes/no questions, so a categorical approach is more accurate than treating inflation hardship as a continuous variable. Second, the categorical approach better specifies the differential impact of both inflation hardship and gender on distress. This allows us to evaluate whether gender moderates the impact of inflation hardship at all levels of hardship or if gender only becomes relevant after a certain threshold of hardship exposure.[3]

We defined gender identity as male (reference), female, transgender, or other. However, due to the relatively small sample size for the transgender category (n = 509) and the ambiguity of the "other" category (n = 1220), we excluded both from the current analysis.

3. Controls

We adjust for socioeconomic variables that could confound the relationship between inflation hardship and distress, including education, income, and employment status (Bryan & Venkatu, 2001). Education was measured by asking respondents what the highest degree or level of school they had completed. Response options included: less than high school (reference), some high school, high school graduate or equivalent, some college, but degree not received or in progress, associate's degree, bachelor's degree, graduate degree. Income was measured by asking respondents, "In 2020, what was your total household income before taxes?" Responses include < $25,000 (reference), $25,000-$34,999, $35,000-$49,999, $50,000-$74,999, $75,000-$99,999, $100,000-$149,999, $150,000-$199,999, and $200,000 and above. Employment status was measured by asking respondents "In the last 7 days did you do any work for either pay or profit?" (yes or no). If the respondent answered that they were not working they were asked the main reason they weren't working for pay or profit. We created an employment measure that consists of five categories: Employed (reference), Unemployed, Caretaker, Retired, and Other. In addition, we control for race (self-reported as Non-Hispanic White (reference), Non-Hispanic Black, Hispanic, Non-Hispanic Asian, or Non-Hispanic Other) due to substantial differences in socioeconomic resources between racial groups that may impact experience of inflation hardship (Williams et al., 2016). We also control for the number of children in the household under age 18 because a greater number of children may increase inflation hardship and/or distress (Mirowsky & Ross, 1999). Models include age (measured in years) and age squared because the relationship between inflation hardship may differ by age (Easaw et al., 2013). We control for marital status because the experience of inflation hardship may differ depending on whether one is married (reference), single or never married, or widowed, separated, or divorced (Bryan & Venkatu, 2001). Models also control for region (North (reference), Midwest, West, or South) and the week of survey to account for changes in mental health during data collection.

4. Analysis

Data analysis proceeded in several steps. First, we use weighted descriptive statistics to describe the characteristics of our sample. Next, we use multivariable OLS regression analyses to model the association

[1] There was <5 percent missing on gender (2.7 percent missing), marital status (0.6 percent missing), household income (2.3 percent missing), and employment status (3.8 percent missing).

[2] In supplementary analyses, we analyzed the association between inflation hardship and depression and inflation hardship and anxiety separately and the results remained consistent with the results presented in the current study using the distress measure.

[3] In supplementary analyses, we examined the association between a continuous measure of inflation hardship and distress, with controls in the model. We found that inflation was positively associated with distress, but no inflation hardship x gender interaction was observed.

between cumulative inflation hardship and distress. After establishing the association between cumulative inflation hardships and distress, we test whether gender moderates the association between inflation hardship and distress. All multivariable models control for race, age, age squared, marital status, region, employment status, household income, educational attainment, number of children in the household under age 18, week of survey and use household weights.

5. Results

The weighted descriptives are presented in Table 1, by gender. Women report higher levels of distress than men (7.895 vs. 7.405). In terms of inflation hardships, we find that 6.9 percent of women report no exposure to inflation hardships, while 11.4 percent of men report no exposure to inflation hardships. In the case of reporting five or more inflation hardships, we note that 3.7 percent of men report experiencing five or more inflation hardships, while 3.3 percent of women reporting experiencing five or more inflation hardships. In our sample, the mean reported age for women is 51, while the mean reported age for men is 50. In terms of employment, 65 percent of men are employed vs. 56 percent of women. There are slightly more women than men with graduate degrees (17 percent vs. 15 percent), while more men than women have high school only (32.3 percent vs. 28.7 percent).

Table 1
Descriptives, household pulse survey (n = 119,531).

Variable	Female (n = 66,221)		Male (n = 53,310)	
	Mean/%	**SD**	**Mean/%**	**SD**
Dependent Variables				
Distress	7.895	3.682	7.405	3.662
Focal Measures				
Inflation Hardship				
No Inflation Hardships	.069		.114	
One Inflation Hardship	.289		.289	
Two Inflation Hardships	.286		.264	
Three Inflation Hardships	.211		.191	
Four Inflation Hardships	.112		.104	
Five or more Inflation Hardships	.033		.037	
Controls				
Age	50.682	16.883	49.844	16.788
Race				
White	.657		.677	
Black	.119		.090	
Latino	.125		.124	
Asian	.039		.053	
Other	.061		.055	
Education				
<High School	.017		.018	
Some High School	.038		.034	
High school	.287		.323	
Some College	.203		.206	
Associate Degree	.104		.089	
College	.184		.180	
Graduate Degree	.167		.149	
Employment				
Employed	.559		.653	
Unemployed	.047		.041	
Caretaker	.040		.007	
Retired	.227		.203	
Other	.128		.095	
Household Income				
<$25,000	.177		.108	
$25,000-$34,999	.123		.089	
$35,000-$49,999	.126		.119	
$50,000-$74,999	.164		.174	
$75,000-$99,999	.113		.134	
$100,000-$149,999	.124		.157	
$150,000-$199,999	.052		.070	
≥$200,000	.055		.087	
Did Not Report Income	.065		.064	
Marital Status				
Married	.471		.568	
Single/Never Married	.236		.257	
Widowed/Divorced/Separated	.293		.176	
Number of Children	.646	1.054	.551	.991
Region				
Northeast	.177		.167	
Midwest	.222		.225	
South	.378		.378	
West	.224		.231	
Survey Week				
September 14–26	.330		.335	
October 5–17	.336		.330	
November 2–14	.334		.334	

Fig. 1 presents the association between each inflation hardship and distress, with controls in the model. Although all inflation hardships significantly predict distress, there are certain hardships that are particularly distressing. We note that hardships related to delaying medical care and asking friends or family for help were particularly distressing for Americans. We also report the percent of men and women reporting each inflation hardship in Appendix 1. There is less than 3 percent difference in the inflation hardships experienced by women vs. men for the majority of inflation hardships. However, there are notable gender differences for the following inflation hardships: the use of benefits from charities, changing/reducing childcare arrangements, and asking friends and family for help.

Table 2 presents the associations between inflation hardships, gender, and distress. Model 1 tests the association between number of inflation hardships on distress, with controls in the model. Model 1 indicates that experiencing any hardships is associated with higher levels of distress. Individuals who experienced one inflation hardship had .579 more distress symptoms than those who experienced no inflation hardships, while individuals who experienced four inflation hardships experienced 3.784 more symptoms of distress than those who experienced no inflation hardship. Individuals who experienced five or more inflation hardships reported the highest level of distress symptoms ($b = 5.169$, $p < .001$). Post-hoc tests (not shown) indicate that exposure to five or more inflation hardships is associated with significantly higher levels of distress than the experience of four, three, two, or one inflation hardship. There is also a significant positive association between being a woman and have higher levels of distress ($b = 0.271$, $p < .001$). Model 2 tests an interaction between inflation hardships and gender. There were no significant interactions observed between one, two, three, or four inflation hardships and gender. However, we do observe a significant interaction between five or more inflation hardships and gender ($b = -0.750$, $p < .001$). The interaction term is negative, which suggests that experiencing five or more inflation hardships is more strongly associated with distress among men compared to women. For ease of interpretation, we graph the interaction between inflation hardships and gender in Fig. 2. We calculated the relative change in the gender gap in distress between four and five or more inflation hardships, which was a .70 gender difference in distress. The 0.70 represents the relative change in the gender gap in distress (scale: 4–16) from experiencing four inflation hardships to experiencing five or more inflation hardships.

5.1. Supplementary analyses

In supplementary analyses, we examined whether different clusters of inflation hardships defined as stressors associated with adjusting behaviors to save money, stressors related to reducing consumption, stressors associated with delaying medical care/purchases, and stressors associated with reaching out for help were associated with distress. We also tested whether these clusters of hardships were moderated by gender. The association between inflation hardship cluster type and distress and inflation cluster type x gender presented a similar pattern to the cumulative inflation hardship measure we use in the present study (Appendix 2). In addition, we tested whether each cluster of inflation hardship was associated with distress, adjusting for all other inflation hardships in the same model as well as whether gender moderated the association between inflation hardship cluster and distress. The results

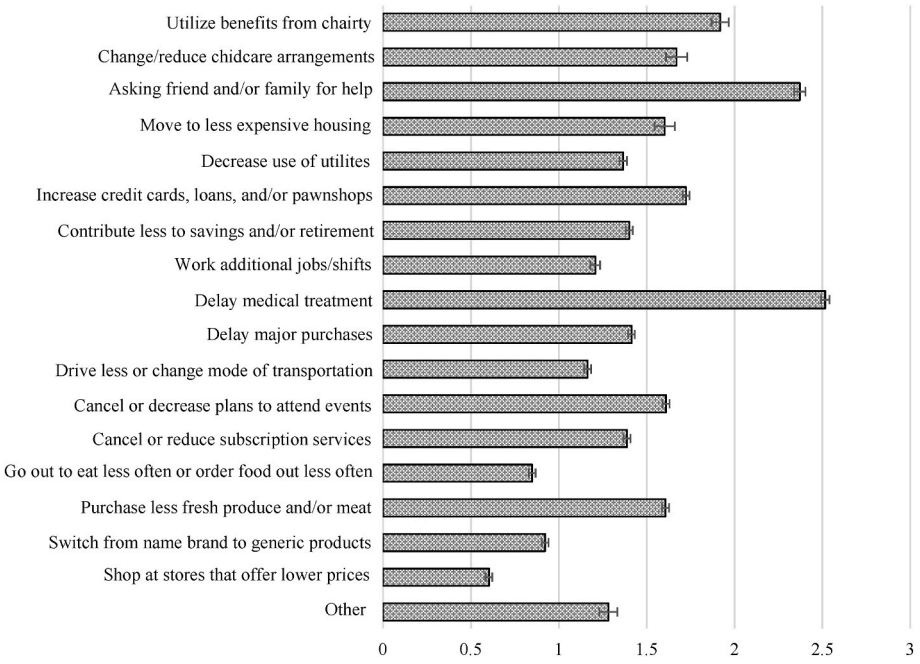

Fig. 1. Adjusted associations between individual inflation-related hardships and distress. Estimates represent results of 18 separate OLS models that adjusted for race, household income, employment status, education, age, age squared, region, number of children, and week included in all models. All models are weighted. (n = 119, 531).

were consistent with those reported in the current study (Appendix 3). We also report the percent of men and women reporting each inflation hardship within each inflation hardship cluster in Appendix 4.

The experience of inflation hardship may differ depending on one's marital status due to potentially different expectations for married vs. single men. As such, in supplementary analyses, we examined the association between inflation hardship and distress for married men, single, never married men, and widowed/divorced/separated men and found a similar association between inflation hardship and distress for all groups of men (Appendix 5). In addition, we examined whether the association between inflation hardship and distress differed depending on different age groups (i.e., ages 18–39, ages 40–65, ages 65–88). Results from these analyses indicate a similar association between inflation hardship and distress for all age groupings (Appendix 6). We also considered several three-way interactions including inflation hardships x gender x income, inflation hardships x gender x education, inflation hardships x gender x employment, and inflation hardship x gender x race. None of these interactions were significant. Finally, we examined the possibility of within group heterogeneity for the association between inflation hardship and distress by race, employment status, and education. Results indicate a similar patterning of inflation hardship and distress for all groups.

6. Discussion

This is the first paper to examine the association between the 2022 rise in inflation hardship and mental health. Results suggest that inflation hardships are a source of distress among Americans, with individuals experiencing even one inflation hardship reporting higher levels of distress relative to those who experienced no inflation hardships. Importantly, findings suggest that a relationship with distress exists across the gradient of inflation hardship exposure, with individuals exposed to five or more inflation hardships reporting the highest level of distress. This finding is supported by research that has examined the impact of cumulative hardships, such as recession related hardships or life event hardships, on mental health, finding that a greater number of hardships is associated with worse mental health (Koltai & Stuckler, 2020; Louie et al., 2023; Sternthal et al., 2011; H. A. Turner et al., 2006). Although the bulk of evidence suggests that hardships influence mental health (Aneshensel & Frerichs, 1982; Bierman et al., 2021; Brown et al., 2000; Schulz et al., 2006), more than vice versa, it is possible that people with worse mental health perceive more hardships related to inflation and may engage in certain behaviors, such as reaching out to friends and/or family for help, in response to inflation hardship. We also document some gender differences in the magnitude of the association between inflation hardship and distress. We note that the findings suggest that the association between experiencing five or more inflation hardships and distress was stronger among men than women. As such we find partial support for the perspective that suggests that men are more sensitive to hardships associated with financial strains. This finding is in line with prior research from the Great Recession that documented increases in mental health problems more for men than women (Katikireddi et al., 2012; Thomson et al., 2018).

One reason that the magnitude of the association for five or more inflation hardships on distress was stronger among men may be because men are more sensitive to hardships that are tied to the masculine gender role (Elliott, 2013). A large body of evidence indicates that men are more reactive to financial hardships than women (Katikireddi et al., 2012; Thomson et al., 2018), due to the fact that the successful execution of masculinity requires financial stability. In addition, men often feel responsible for the finances in the context of the family, and thus may feel like they are failing to meet their role as the economic provider in their household when they are exposed to inflation hardships. It is important to note that gender differences in the relationship between inflation hardships and distress were not observed at lower levels of inflation hardship (four inflation hardships or less) suggesting a threshold effect. Evidence of gender differences emerged only among individuals who reported being exposed to five or more inflation hardships. This may be because men start to internalize the experience of inflation hardship as a personal failing when confronted with five or more inflation hardships. It is also possible that women have better coping resources than men (Schieman & Taylor, 2001; R. J. Turner & Marino, 1994; Umberson et al., 1996), which may also help buffer the impact of five or more inflation hardships on distress. Future research

Table 2
Inflation hardships, gender, and distress (n = 119,531).

	Model 1 Inflation Hardships	Model 2 Inflation Hardships x Female
	b (se)	*b* (se)
Focal Variables		
Inflation Hardship (ref: No Inflation Hardships)		
One Inflation Hardship	.579*** (.063)	.552*** (.078)
Two Inflation Hardships	1.334*** (.058)	1.292*** (.079)
Three Inflation Hardships	2.408*** (.064)	2.288*** (.089)
Four Inflation Hardships	3.784*** (.086)	3.813*** (.135)
Five or more Inflation Hardships	5.169*** (.123)	5.547*** (.166)
Gender (ref: Male)		
Female	.271*** (.037)	.208* (.090)
Interaction		
Inflation Hardship x Female		
One Inflation Hardship x Female		.066 (.111)
Two Inflation Hardships x Female		.095 (.112)
Three Inflation Hardships x Female		.235 (.122)
Four Inflation Hardships x Female		−.039 (.169)
Five or more Inflation Hardships x Female		−.750*** (.234)
Controls		
Age	−.002 (.837)	−.002 (.008)
Age^2	−.000*** (.000)	−.000*** (.000)
Race (ref: White)		
Black	−.453*** (.717)	−.455*** (.072)
Latino	−.339*** (.074)	−.342*** (.081)
Asian	−.456*** (.081)	−.456*** (.081)
Other	.192* (.088)	.191* (.088)
Education (ref: <High School)		
Some High School	−.314 (.252)	.309 (.252)
High School	.102 (.215)	.100 (.214)
Some College	.168 (.429)	.167 (.213)
Associate Degree	.111 (.602)	.112 (.215)
College	−.063 (.212)	−.064 (.212)
Graduate Degree	−.184 (.212)	−.186 (.213)
Household Income (ref: <25,000)		
$25,000-$34,999	−.279** (.089)	−.279** (.089)
$35,000-$49,999	−.612*** (.087)	−.612*** (.087)
$50,000-$74,999	−.865*** (.077)	−.865*** (.077)
$75,000-$99,999	−1.102*** (.080)	−1.102*** (.082)
$100,000-$149,999	−1.219*** (.078)	−1.219*** (.076)
$150,000-$199,999	−1.283*** (.087)	−1.283*** (.088)
≥$200,000	−.1.335*** (.085)	−1.336*** (.085)
Did Not Report Income	−.682*** (.105)	−.687*** (.105)
Employment Status (ref: Employed)		
Unemployed	.890*** (.106)	−.888*** (.106)
Caretaker	−.069 (.134)	−.068 (.134)
Retired	−.122* (.056)	−.121* (.056)
Other	1.171*** (.074)	1.170*** (.074)
Marital Status (ref: Married)		
Single/Never Married	.434*** (.058)	.431*** (.059)
Widowed/Divorced/ Separated	.307*** (.048)	.303*** (.048)
Number of Children	−.122*** (.022)	−.122*** (.022)
Region (ref: North)		
South	−.045 (.056)	−.032 (.056)
Midwest	−.253*** (.057)	−.255*** (.057)
West	−.037 (.060)	−.038 (.059)
Week (ref: September 14–26)		
October 5–17	−.034 (.047)	−.034 (.047)
November 2–14	−.070 (.043)	−.070 (.043)

†p < .10, *p < .05, **p < .01, ***p < .001 (two-tailed tests).

should test whether gender differences in coping resources such as perceived social support, mattering, and self-esteem explain why men have worse mental health than women when confronted with five or more inflation hardships.

The strain that inflation has introduced to the daily lives of Americans has created a situation that is difficult for Americans to solve via individual action, which may in turn foster feelings of powerlessness. Because inflation is a macro-level problem, it is key for governments to respond with policies that can relieve some of the stress produced by the current economic climate. For example, Donnelly and Farina (2021) show that in states that introduced economic relief packages during COVID-19 (e.g. unemployment expansion) had lower rates of depression and anxiety than states that did not introduce such packages. Evidence from the Great Recession also suggest that strong social safety nets may be an effective way at reducing the negative impacts that economic downturns can have on health (Margerison-Zilko et al., 2016).

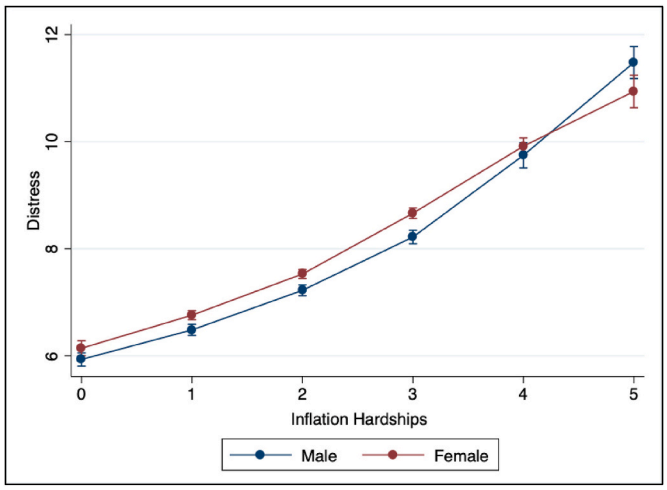

Fig. 2. The association between inflation hardship and distress by gender. Estimates are derived from Model 2 of Table 2. All covariates are held at their respective means.

6.1. Limitations

This study is not without limitations. First, we used Phase 3.6 (i.e., week 49, week 50, and week 51) of the HPS data and therefore the data only captured a small snapshot of the association between inflation and mental health. As inflation persists, we may see increases in mental distress in the population and potentially an even greater divergence between the mental health of men and women. In addition, the cross-sectional nature of the data makes it difficult to draw causal statements about the direction of the relationship between inflation hardships and mental health. As we note above, there is likely a reciprocal relationship between these experiences, such that inflation hardship contributes to psychological distress and psychological distress in turn shapes an individual's perception of and reactions to inflation hardship. Longitudinal data is necessary to test this possibility. Second, this study examines only one mental health outcome. In order to generalize the impact of inflation as a hardship, it is important to examine a broader array of outcomes, including anger, binge drinking, cortisol levels, and blood pressure. It should also be noted that the HPS is an experimental data tool with a response rate that ranges from 5.3% to 10.6% across data collection periods (U.S. Census Bureau, 2023). Finally, the HPS does not have a detailed measure of work (i.e., full-time vs. part-time), which could also be an important covariate to adjust for in the relationship between inflation hardship, gender, and distress.

7. Conclusions

This study examined the 2022 rise in inflation hardships in relation to mental health. The results of this study suggest that inflation hardship is associated with greater levels of distress in the U.S. population. We found a clear gradient in the relationship characterized by progressively increasing levels of distress across the spectrum of inflation hardship,

with the highest levels of distress observed among individuals exposed to five or more inflation hardships. Findings from this study also suggest that the relationship between severe inflation hardship and distress varies by gender, with evidence of a stronger association among men compared to women. Going forward, scholars should consider potential reasons for these gender differences as well as potential social policies that may buffer the impact of inflation hardships on distress.

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Author statement

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Declaration of competing interest

None declared.

Data availability

The data is publicly available: https://www.census.gov/data/experimental-data-products/household-pulse-survey.html

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssmph.2023.101452.

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