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Wookjae Heo
Purdue University

Keewon Moon
Exodus Flying Books

Sun Young Ahn
University of Puget Sound

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Unmasking the Phantoms of Generations: A Comparative Study of Financial Responsibility and Stress Across Generational Divides (FTA Best Paper Award)

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Unmasking the Phantoms of Generations: A Comparative Study of Financial Responsibility and Stress Across Generational Divides

Wookjae Heo, Ph.D.
Purdue University

Keewon Moon, MS
Exodus & Flying

Sun Young Ahn, Ph.D.
University of Puget Sound

This study investigated whether financial stress is associated with experiencing the COVID-19 pandemic across different generations. In addition, this research examined whether financial payment behaviors are associated with experiencing the COVID-19 pandemic, different generations, and having higher financial stress. Two cross-sectional samples were collected from the United States at two time points, before COVID-19 (n = 823) and during COVID-19 (n = 803). Ordinary least squared (OLS) regression and ordered logistic models were utilized to answer the research questions. The results revealed that COVID-19 increased financial stress, but the younger generations have demonstrated resilience in dealing with the pandemic, contrary to previous research. Furthermore, when analyzing specific financial payment behavior trends such as responsible behavior, continuous age values were found to be more significant than generational divisions. Consequently, the results indicated financial stress related to the COVID-19 pandemic, but it was not associated with generational categories. Both academic and practical implications of the findings are discussed.

Keywords: financial behavior; millennials; Gen Z; payment behavior

BACKGROUND

The recent outbreak of COVID-19 and its effects have profoundly affected the health and well-being of healthcare systems, economies, and people worldwide (Fox & Bartholomae, 2020). The concerns about infection, disease, and death during the pandemic caused depression, anxiety, and stress (Bao et al., 2020; Gunnell et al., 2020). Moreover, countries' excessive implementation of emergency measures and restriction policies due to COVID-19 further presented negative psychological effects and financial and psychological distress in individuals (Shanahan et al., 2020). Thus, the devastating impact of the pandemic drove consumers to make long-term shifts in their attention and behavior (Zwanka & Buff, 2021).

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Unsurprisingly, the shifts also include issues in family finance and economics (Reinicke, 2020). Recent literature showed that in certain generations in which consumption was active, they have delayed spending due to COVID-19 (White, 2021). This is mostly about credit card payment difficulties for millennials and younger generations, which account for the largest proportion of the consumer market. This phenomenon is also a result of financial instability and financial stress associated with COVID-19. As a result, it can be said that the economic stress caused by COVID-19 has had a holistic impact on individual and generational financial behavior.

In discussions about COVID-19 issues, many recent news media and studies have discussed the behavior patterns of generations like millennials and Generation Z [Gen Z, hereafter]. They have highlighted the differences from previous generations and generational gaps. However, there are criticisms that the generation issue can be a myth (Menand, 2021) because ages are continuous instead of separated categories. In addition, Parker (2023) from the Pew Research Center also highlighted concerns regarding the use of generational labels in research, noting that such classifications can lead to the inappropriate creation of stereotypes or result in oversimplification. Examining whether the difference across generations in financial behaviors is a reality or merely a myth is necessary. Therefore, considering the COVID-19 effects on financial situations, examining the existence of generational differences in financial behavior is the ultimate research goal of the current study.

RESEARCH QUESTIONS

To investigate the existence of generational differences in financial behavior, the generations should be understood. First, the millennial generation is the largest population in the United States (Mottola, 2014). Millennials also suffered long-term career development and job satisfaction due to the economic recession between 2007 and 2009 (De Hauw & De Vos, 2010). Unexpected events (e.g., the 2007/2008 Recession, a tragedy like 9/11, etc.) caused societal changes. The generations that grew up after such unexpected changes reframed the overall values of society, finance, and literature (Debevec et al., 2013). This led millennials to focus more on enjoying the desire for consumption rather than shaping the value of saving. The recent outbreak of COVID-19 can be another unexpected event that influences behavior change. Thus, this implies that the millennials could be affected by another economic crisis caused by the COVID-19 pandemic. Specifically, we expect that changes in financial payment behavior and the financial stress of millennials were associated with economic changes due to COVID-19.

In addition, the generation following millennials, Gen Z, was also investigated in the current study and compared to the older generations (i.e., the boomers and the silent generation). Gen Z was also assumed to be affected by the COVID-19 economic downturn. It is found that young Americans consider COVID-19 more stressful and a greater threat to their personal finances than older Americans (Schaeffer & Rainie, 2020).

As such, this implies that millennials and Gen Z were exposed to economic impacts and stresses from uncertain futures and epidemics (Parker & Igielnik, 2020). Therefore, the current study aims to investigate the changes in financial stress and financial behavior of the generations during the COVID-19 outbreak. Based on the ultimate

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research goal above, this study has two research facets: (1) to examine whether financial stress was associated with experiencing the COVID-19 outbreak and the impact on different generations, and (2) to investigate whether responsible financial behaviors were associated with experiencing the COVID-19 outbreak, examined across different generations, and their financial stress levels. To achieve the first research purpose, the research question was:

Q1. Is financial stress associated with experiencing the COVID-19 outbreak, and was the stress experienced differently among different generations?

To achieve the second research purpose, we focused on three types of financial payment behaviors (i.e., paying bills on time, staying on budget, and paying off credit on time), and the research questions are presented below. Demographic factors were controlled.

Q2. Is paying bills on time associated with experiencing the COVID-19 outbreak, different generations, and financial stress levels?
Q3. Is staying on a budget associated with experiencing the COVID-19 outbreak, different generations, and financial stress levels?
Q4. Is paying off credit on time associated with experiencing the COVID-19 outbreak, different generations, and financial stress levels?

By addressing the research questions, the findings of this study contribute both academically and practically to the fields of financial behavior and financial stress. The results will provide empirical evidence that can assist future research and the development of services designed to deal with potential economic crises brought on by pandemics such as COVID-19.

LITERATURE REVIEW

Generations

"Generation" is a common sociological conceptualization that refers to a group of people born during the same time span and who share similar life experiences (Eyerman & Turner, 1998). This conceptualization of a "generation" is rooted in Mannheim's (1952) theory of generations, where members of the same generation group share more than the same birth year. According to this theory, the life experiences and social context shared with peers cause each generation to develop different beliefs, values, and views regarding their lives and, consequently, different behaviors (Lancaster & Stillman, 2002). Thus, the generational approach posits that changes in the macro-environment influence the characteristics of people born in a specific time period and their consumption or spending behaviors (Howe & Strauss, 2009).

As the generation theory explained, previous studies found that certain social events such as the 2007/2008 depression, terrorism, and disease can affect the environment of individuals' employment, economy, health, and education (e.g., Ballester et al., 2019; Bruckner et al., 2019; Thomson et al., 2018). Stressful life or social events influence the unemployment rate and macro environment, leading to changes in

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consumption patterns—either reinforcing or reducing them—and changes in personal spending habits in response to stress (Boissay & Rungcharoenkitkul, 2020). Therefore, it is expected that COVID-19 will impact individual consumer spending behaviors and financial matters. Further, the change is expected to vary across different generations from a generational perspective.

Although there is no general consensus on the precise temporal points for determining generations, this study utilizes the following birth years: Generation Z (1996 – 2015), Millennials (1977 – 1995), Generation X (1965 – 1976), Baby Boomers (1946 – 1964), Silent Generation (1945 and before).

Younger Generations and Their Financial Characteristics

Due to these historical events and shared social experiences (e.g., 9/11 and the 2007/2008 depression) of millennials, their generational characteristics are seen to reflect well in their financial behavior. Specifically, millennials faced the Great Recession early in their lives and continue to deal with the economic challenges of a post-recession economy in their life and careers. Since different generations have varying perspectives on life, these differences extend to their personal financial behavior (Shobha & Kumar, 2020). Research indicated that millennials tend to make more complex financial decisions in an era of uncertainty (Friedline & West, 2016). Friedline and West (2016) also found that millennials' financial capabilities significantly impacted their financial behaviors, including financial vulnerability, use of alternative financial services, and debt burdens. Accordingly, past research suggests millennials are engaged in less responsible financial behavior than previous generations. For example, Shobha and Kumar (2020) revealed that millennials scored lower in financial literacy, exhibited a lower propensity to financial planning, and displayed lower financial risk tolerance than the older generation, Gen X. In addition, using data from the FINRA Financial Education Foundation's National Financial Capability Study, Mottola (2014) found that millennials had lower levels of financial capability, such as spending more than income, having unpaid bills, and limited financial planning, in comparison to Gen X, Baby Boomers, and Silent generation. Further, it is found that millennials anticipate that they will experience more difficulties with retirement compared to previous generations due to entering the labor market after the 2007/2008 depression and experiencing lower wages compared to previous generations (Kelly & Datta, 2015). Therefore, given their financial challenges, millennials are expected to exhibit more problematic financial behavior than older generations (Inseng & Teichert, 2016; Motola, 2014).

Millennials and Gen Z have shorter lifespans than the previous generations because technological and social changes are taking place faster than in the past. Therefore, Mayer (2020) explained that Gen Z was a millennial on steroids. Millennials are a generation that shared the explosion of Internet technology from the beginning, and Gen Z is an extension of the life of technological advances that millennials have already made (Dimock, 2019). However, Gen Z experienced different historical and social events compared to millennials, which proposes different behavior patterns between the two generations. Millennials were old enough to understand historical events during the 9/11 attacks, but Gen Z had little memory of the events (Dimock, 2019). In addition, Gen Z came of age with the economic collapse caused by the depression in 2007/2008 (Tulgan, 2013;

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Turner, 2015), which was greatly influenced by the value of their business and financial situation. Furthermore, financial understanding tends to be the lowest in Gen Z and lower for those within Gen Z who do not attend college (Yakoboski et al., 2021). Yakoboski et al. (2021) also reported that 52% of Gen Z and 48% of millennials said the pandemic motivated them to raise awareness of the value of financial knowledge.

COVID-19, Younger Generation, and Financial Stress

COVID-19 has affected almost all generations' financial plans and stress, but the younger generation has been more negatively affected. The financial stress associated with the pandemic has disproportionately affected the work performance of Gen Z and millennial workers over the past year (Peterson & Taylor, 2021). In addition, Leonhardt (2020) reported that a third of millennials (aged 24 to 39) and Gen Z (aged 18 to 23) experienced an extreme or very negative impact on fiscal stability by COVID-19. This is a significant result because only 16% of baby boomers (aged 56 to 74) and 6% of the silent generations (75 years or older) felt the same way.

Financial stress is a comprehensive response when people perceive imbalance and uncertainty in their financial resource management (Heo et al., 2020). From a psychological point of view, infectious diseases cause individual life events related to uncertainty, ambiguity, and loss of control, and each event is known to cause stress and emotional pain, including anxiety, depression, and anger within the individual (Ensel & Lin, 1991; Pearlin et al., 1981). Therefore, the COVID-19 pandemic was assumed to lead to stress accompanied by emotions such as anxiety, depression, and anger, as well as concerns about one's health and loved ones' health, economic collapse, and loss (Forbes et al., 2016).

COVID-19 has had a significant impact on society and families in the short and long term, including anxiety over health problems, job instability, financial instability, stress and conflict between couples due to self-quarantine and telecommuting, difficulties in credit card payments, increased debt, and the global economy has slowed unprecedentedly (e.g., Mastropietro et al., 2020; Phan & Narayan, 2020; Remuzzi & Remuzzi, 2020). As such, the increase in financial stress caused by COVID-19 is an issue to investigate, which would be expected to significantly impact an individual's financial well-being (Brewer & Gardiner, 2020; Brodeur et al., 2021).

METHOD

Data

Data was collected through an online random sampling method by employing an online survey agency. Cross-sectional samples were collected from the United States at two-time points, before COVID-19, and during COVID-19. The first set of surveys (n = 823) was collected in October 2019, and the second set (n = 803) was collected in January 2021. Because the first case of COVID-19 in the United States was reported on January 21, 2020 (Centers for Disease Control and Prevention [CDC], 2020), the first survey from 2019 was considered pre-pandemic, and the second survey was considered to be during the pandemic. Details of the demographic features of the two survey samples are shown

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in Table 1. Both surveys included generations and demographic features such as gender, marital status, income level, education level, health status, work status, and number of children.

Table 1.

Descriptive Information of Two Survey Samples.

	Prior to COVID-19 October 2019 (n = 823)		During COVID-19 January 2021 (n = 803)	
	Frequency	Percentage	Frequency	Percentage
Generations				
Gen Z	77	9.36%	185	23.04%
Millennials	296	35.97%	369	45.95%
Gen X	205	24.91%	146	18.18%
Boomers	224	27.22%	91	11.33%
Silent	21	2.55%	12	1.49%
Female	634	77.04%	375	46.70%
Married	477	57.26%	442	55.04%
Income				
Less than $15k	72	8.75%	108	13.45%
$15k - $25k	95	11.54%	85	10.59%
$25k - $35k	110	13.37%	101	12.58%
$35k - $50k	124	15.07%	109	13.57%
$50k - $75k	166	20.17%	139	17.31%
$75k - $100k	117	14.22%	91	11.33%
$100k - $150k	98	11.91%	103	12.83%
Over $150k	41	4.98%	67	8.34%
Education				
High school or lower	170	20.66%	185	23.04%
Some college (AA)	243	29.53%	214	26.65%
College (BA)	284	34.51%	237	29.51%
Graduate or higher	126	15.31%	167	20.80%
Health Status				
Excellent	155	18.83%	255	31.76%
Good	474	57.59%	382	47.57%
Fair	159	19.32%	138	17.19%
Poor	35	4.25%	28	3.49%
Work Status				
Full-time	326	39.61%	371	46.20%
Part-time	85	10.33%	76	9.46%
Self-employed	54	6.56%	63	7.85%
Homemaker	84	10.21%	42	5.23%
Full-time student	20	2.43%	61	7.60%
Not working	254	30.86%	190	23.66%
	M	S.D.	M	S.D.
Number of Children	.71	1.14	.78	1.09

Note. (N = 1,626)

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Measurement

The major variables of the study were COVID-19, financial stress, and responsible financial behavior. First, COVID-19 was the quasi-treatment variable used to divide the total sample into two separate samples. The first sample included 823 respondents who participated in the survey prior to COVID-19 (October 2019). For the first sample, COVID-19 was coded as zero (control group). The second sample included 803 respondents who participated in the survey during COVID-19 (January 2021). For the second sample, COVID-19 was coded as 1 (treatment group). Therefore, by using the binary code for COVID-19, it is possible to compare the financial behavior prior to COVID-19 and during COVID-19.

Second, financial stress was measured using 24 items introduced by Heo et al. (2020). The 24 items asked respondents how they experienced financial stress within three dimensions: affective, relational, and physiological responses. By using a 5-point scale (1 = strongly disagree; 5 = strongly agree), the total sum of 24 items was utilized in the study as the construct for financial stress. A higher score in financial stress denoted a higher stress level for the respondent. The Cronbach alphas of 24 items were .97 in the first sample (n = 823) and .98 in the second sample (n = 803). Therefore, the reliability of the scale was confirmed. In addition, to check the construct validity of 24 items, confirmatory factor analysis (CFA) was utilized. The CFA was conducted with three sub-dimensions (i.e., eight items for affective reaction, eight for relational behavior, and eight for physiological responses). Among the first sample prior to COVID-19, the root mean square error of approximation (RMSEA) was .077; the comparative fit index (CFI) was .948; and the standardized root mean squared residual (SRMR) was .051. Among the second sample during COVID-19, RMSEA was .078; CFI was .950; and SRMR was .0.39. Among both periodic samples, the goodness-of-fit model CFA were all within an acceptable range: RMSEA under .08, CFI over .95, and SRMR under .08 (Hu & Bentler, 1999; Kline, 2011).

For responsible financial behavior, three behaviors were measured: bill pay, staying within budget, and paying off credit. The question was asked as follows: *Please indicate how often you have engaged in the following activities in the past 6 months. Paid all your bills on time; Stayed within your budget or spending plan; and Paid off credit card balance in full each month*. All three questions were asked using a 5-point scale (1 = never; 5 = always), and any missing responses were excluded from the sample. These questions were adopted to investigate responsible financial behavior in personal finance (Perry & Morris, 2005). The higher the score, the better a respondent managed the bills, budget, and credit. Table 2 shows the basic information about the major variables, including financial stress and responsible financial behavior.

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Table 2.

Univariate Information of Financial Stress and Responsible Financial Behavior.

				Prior to COVID-19 October 2019 (n = 823)		During COVID-19 January 2021 (n = 803)		Comparison
	Items	Min.	Max	M	SD	M	SD	*t*
Financial stress	24	24	120	57.85	24.44	67.97	25.58	-7.68***
Bill pay	1	1	5	4.39	.96	4.17	1.06	4.37***
Stay in budget	1	1	5	3.56	1.14	3.73	1.13	-2.97**
Pay credit	1	1	5	3.21	1.59	3.59	1.44	-5.07***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Empirical Models

To answer the first research question (Q1), the first empirical model used was the ordinary least squared regression (OLS) to investigate whether financial stress was associated with COVID-19 and generations, as in Equation (1):

$$\text{FS} = \alpha + b_{CVD}COVID - 19 + b_i Gen_i + b_j Demo_j + e \quad \ldots (1)$$

where FS is financial stress; b_{CVD} denotes the coefficient of during COVID-19; b_i means coefficients for generations; Gen_i includes Gen Z, millennials, Generation X [Gen X, hereafter], and silents, while the reference generation was boomers; b_j is the coefficients for demographic factors; and $Demo_j$ includes gender, marital status, income level, education level, number of children, health status, and working status.

To answer the other research questions (Q2 to Q4), ordered logistic models were utilized to investigate whether financial stress and generations were associated with responsible financial behavior. The ordered logistic model was utilized because the dependent variables of these three empirical models were ordinal variables (1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = always). In addition, two interaction terms were included in the empirical model because financial stress and generation effects can be combined with COVID-19. By including the interaction term between COVID-19 and financial stress, it is possible to investigate the effect of financial stress over two periods and the marginal effect of financial stress during COVID-19. Similarly, by including the interaction term between COVID-19 and generation, it is possible to understand the effect of generation over the two periods and the marginal effect of generation during COVID-19. Additionally, demographic factors were incorporated as controls to account for the potential systematic differences arising from using two distinct surveys conducted in 2019 and 2021. This approach was employed to mitigate any discrepancies between the two survey periods. Finally, the equations based on the above explanation were like below in Equation (2) to (4):

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$$\text{Bills} = \alpha + b_{CVD}COVID19 + b_{FS}FS + b_i Gen_i + b_{CF}COVID19 * FS + b_{CG}COVID19 * Gen + b_j Demo_j + e \quad \ldots (2)$$

$$\text{Stay} = \alpha + b_{CVD}COVID19 + b_{FS}FS + b_i Gen_i + b_{CF}COVID19 * FS + b_{CG}COVID19 * Gen + b_j Demo_j + e \quad \ldots (3)$$

$$\text{Credit} = \alpha + b_{CVD}COVID19 + b_{FS}FS + b_i Gen_i + b_{CF}COVID19 * FS + b_{CG}COVID19 * Gen + b_j Demo_j + e \quad \ldots (4)$$

where Bills mean bill payment, Stay means stays in budget, Credit is the credit payment, bFS denotes the coefficient for financial stress, and b_{CF} is the coefficient of the interaction term between COVID-19 and financial stress.

Based on the above equations (2) to (4), the ordered logit models were utilized to estimate the odds ratios (OR) like below in Equation (5):

$$g_k(X_{all}) = log\left\{\frac{P(Y_m \leq (k|X_{all})}{P(Y_m > k|X_{all})}\right\} = \alpha_k - \beta' X_{all} \quad k = 1, 2, 3, 4, 5 \quad \ldots (5)$$

where X_{all} means the independent variables from equations (2), (3), and (4); k denotes the number of ordinal categories, which is 5 (1 = never; 5 = always) in this study; and Y_m is the empirical models (equation (2) to (4), m = 2, 3, 4). Finally, α_k was produced as the cut points of each category (Greene, 1993, p. 674); and β' was the odds ratios of independent variables calculated by the proportional ordered logistic regression (Fagerland & Hosmer, 2017). Given the use of two separate survey samples in this study, robust estimation methods were applied to ensure the robustness of the results.

RESULTS

Association Among Financial Stress, COVID-19, and Generations

Table 3 shows the results of the first research question (Q1) regarding how COVID-19 and the generations are associated with financial stress. First, the financial stress score was significantly higher for the sample during COVID-19 compared to the sample prior to COVID-19. Second, generations showed significantly different financial stress scores. Compared to boomers, Gen Z, millennials, and Gen X showed significantly higher financial stress. Considering that Gen Z, millennials, and Gen X are younger than boomers and more likely to belong to the labor force (i.e., age until 59), their higher financial stress than boomers might be related to their economic status in their life stages.

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Table 3.

Financial Stress by COVID-19 Pandemic.

	b	Robust S.E.	95% C.I. Lower	Higher
COVID-19	5.41***	1.31	2.85	7.97
Generation				
Gen Z	15.64***	2.33	11.06	20.21
Millennials	15.78***	1.93	12.00	19.56
Gen X	8.81***	1.90	5.09	12.53
Silent	-5.03	3.49	-11.87	1.81
Female	-2.12	1.39	-4.84	.61
Married	4.02**	1.34	1.40	6.65
Income				
$15k - $25k	-4.06	2.60	-9.16	1.04
$25k - $35k	-4.49	2.54	-9.47	.50
$35k - $50k	-9.73***	2.40	-14.44	-5.02
$50k - $75k	-12.24***	2.46	-17.07	-7.41
$75k - $100k	-12.36***	2.68	-17.62	-7.11
$100k - $150k	-9.87**	2.98	-15.71	-4.03
Over $150k	-13.71***	3.76	-21.08	-6.34
Education				
Some college (AA)	-2.56	1.67	-5.83	.72
College (BA)	-1.34	1.74	-4.74	2.07
Graduate or higher	1.16	2.20	-3.16	5.48
Number of Children	2.06**	.64	.80	3.31
Health Status				
Good	-2.76	1.72	-6.14	.61
Fair	10.32***	1.96	6.46	14.17
Poor	13.81***	3.26	7.42	20.19
Work Status				
Part-time	-4.35*	2.08	-8.43	-.27
Self-employed	-6.32*	2.49	-11.19	-1.45
Homemaker	-9.79***	2.24	-14.19	-5.40
Full-time student	-12.58***	3.08	-18.61	-6.55
Not working	-7.23***	1.85	-10.85	-3.61
Constant	59.57***	3.65	52.41	66.74
R^2	.21			
F	21.92***			

Note. (N = 1,626), * $p < .05$; ** $p < .01$; *** $p < .001$. The reference group for the generation was boomers; the reference group for gender was male; the reference group for marital status was single; the reference group for income was lower than $15k; the reference group for education was high school graduate or lower than high school; reference group for health status was excellent; and reference group for work status was full-time worker.

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Other than the major predictors (i.e., COVID-19 and generations), there are significant predictors among demographic factors to be associated with financial stress: marital status, income level, number of children, health status, and working status. Married people showed higher financial stress than singles, and the number of children increased the financial stress. This implies that family structure was associated with financial stress. When the income level was over a certain amount (over $35k), financial stress decreased. Interestingly, higher education levels compared to high school or lower did not show any significant association with financial stress. Compared to those with excellent health status, those with fair or poor health status showed higher scores in financial stress. Finally, working status was also associated with financial stress. Compared to full-time workers, other types of working status showed lower levels of financial stress.

Responsible Financial Behaviors, Financial Stress, COVID-19, and Generations

Ordered logistic regression was utilized to answer Questions 2 to 4. Three ordered logistic models showed good fit, and all chi-squares were significant: χ^2 for the bill pay model was 433.16 ($p < .001$); χ^2 for the stay-in-budget model was 398.21 ($p < .001$); and χ^2 for the credit pay model was 415.35($p < .001$). In addition, the cut points of each model showed similar gaps. For instance, in the bill pay model, the four cut points were possibly converted to three Greene's intercept (Greene, 1993).

By using Greene's (1993) intercept, the cut points of Table 4 transformed to u_1 = 1.64 ($p < .001$), u_2 = 1.14 ($p < .001$), and u_3 = 1.35 ($p < .001$) when it is the pay bill model. In the case of the stay-in-budget model, the cut points of Table 4 transformed to u_1 = 1.54 ($p < .001$), u_2 = 1.42 ($p < .001$), and u_3 = 1.64 ($p < .001$). For the credit pay model, the cut points of Table 4 transformed to u_1 = .83 ($p < .001$), u_2 = .80 ($p < .001$), and u_3 = .82 ($p < .001$). As the intercepts were similar in each model, the ordinal assumption of dependent variables was retained in each model.

Table 4.

Responsible Financial Behaviors.

	Bill Pay		Stay in Budget		Pay Credit	
	OR	Robust S.E.	*OR*	Robust S.E.	*OR*	Robust S.E.
COVID-19	.20***	.06	.39***	.11	.57*	.16
Financial Stress	.96***	.01	.96***	.01	.97***	.01
Generation						
Gen Z	.29*	.17	.23**	.11	.77	.38
Millennials	.31*	.16	.19***	.07	.45*	.19
Generation X	.38	.20	.37*	.15	.79	.37
Silent	.91	1.15	1.18	1.23	1.32	1.60

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Interaction Terms						
Fin Stress*COVID	1.02***	.00	1.02***	.00	1.01**	.00
Fin Stress*Generations						
Fin Stress*Gen Z	1.01	.01	1.02*	.01	1.01	.01
Fin Stress*Millen	1.01	.01	1.02**	.01	1.01*	.01
Fin Stress*Gen X	1.01	.01	1.01	.01	1.00	.01
Fin Stress*Silent	.99	.02	1.01	.02	1.01	.02
Female	1.05	.13	.69***	.08	.69***	.08
Married	1.14	.14	1.13	.12	1.04	.11
Income						
$15k - $25k	.96	.22	.65*	.15	.62*	.13
$25k - $35k	.78	.17	.58**	.12	.68*	.13
$35k - $50k	1.10	.24	.73	.16	.65*	.13
$50k - $75k	1.26	.28	.65*	.13	.76	.15
$75k - $100k	1.70*	.43	.69	.15	1.16	.25
$100k - $150k	2.35**	.62	1.17	.28	1.56*	.35
Over $150k	3.14***	1.10	1.21	.35	1.98*	.53
Education						
Some college (AA)	.88	.13	.93	.12	.83	.11
College (BA)	.98	.16	1.10	.15	1.24	.17
Graduate or higher	1.37	.28	1.25	.21	1.81**	.32
Number of Children	.93	.06	.99	.05	.91*	.05
Health Status						
Good	.37***	.06	.38***	.05	.41***	.05
Fair	.28***	.05	.27***	.04	.29***	.05
Poor	.36**	.12	.23***	.06	.44**	.11
Work Status						
Part-time	.96	.17	1.17	.19	1.25	.20
Self-employed	.67*	.14	.86	.17	1.07	.20
Homemaker	.95	.22	1.27	.25	1.14	.24
Full-time student	2.14**	.60	1.39	.33	2.73***	.74
Not working	1.16	.19	.96	.14	1.18	.18
Cut points						
Cut point 1	-8.22	.59	-7.22	.46	-4.24	.46
Cut point 2	-6.59	.57	-5.68	.44	-3.41	.45
Cut point 3	-5.45	.56	-4.26	.43	-2.61	.45
Cut point 4	-4.10	.56	-2.62	.42	-1.79	.45
Pseudo R^2	.11		.08		.08	
χ^2	309.05 ***		346.36* **		360.78** *	

Note. (N = 1,626), * $p < .05$; ** $p < .01$; *** $p < .001$. The reference group for generation was boomers, the reference group for gender was male, the reference group for marital status was single, the reference group for income was lower than $15k, the reference group for education was high school graduates or lower than high school, the reference group for health status was excellent, and reference group for work status was full-time worker.

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As shown in Table 4, responsible financial behaviors were significantly associated with financial stress, COVID-19, and generations. COVID-19 was significantly and negatively associated with responsible financial behaviors. In short, COVID-19 decreased the rates across all responsible financial behaviors. The results also indicate that financial stress was significantly and negatively associated with responsible financial behaviors. However, the tendency changed to positive when considering the financial stress combined with COVID-19 (i.e., the interaction term between financial stress and COVID-19). This means that the negative effect of financial stress on responsible financial behaviors was buffered during the COVID-19 pandemic, which suggests that financial stress worked as a coping mechanism against the pandemic stimuli.

In the case of generations, younger generations (i.e., compared to boomers) showed decreased responsible financial behaviors. For instance, Gen Z and millennials showed decreased behavior in bill pay; Gen Z, millennials, and Gen X showed decreased behavior in stay-in-budget; and millennials showed decreased behavior in pay credit. However, considering the financial stress combined with generations (i.e., the interaction term between financial stress and generations), the tendency changed to positive in two models, with Gen Z and millennials. Particularly, Gen Z and millennials showed the positive effect of financial stress on behavior in stay-in-budget, and millennials showed the positive effect of financial stress on behavior in pay credit. Similar to the findings above, this suggests that financial stress may work as a coping mechanism for Gen Z and millennials to help their responsible financial behavior. However, other generations did not observe this pattern (i.e., Gen X, boomers, and silent).

DISCUSSION

The ultimate research goal of the study was to examine the existence of generational differences in specific financial behavior, such as responsible financial behavior. Some news articles and research divided the younger generations (i.e., millennials and Gen Z) from the older generations (i.e., silent, boomers, and Gen X). However, their categories of division are not examined precisely in the realm of financial behavior. Therefore, this study investigates how the generations differ regarding specific financial behavior, such as responsible financial behavior. Based on the research goal, the empirical modeling of the current study investigated the associations among financial stress, generations, and COVID-19 and further examined the associations with responsible financial behaviors.

The study's value lies in its focus on generational differences. Given that generations experience unique historical and social circumstances that shape their behaviors, we further examined the associations by generations. In particular, we examined whether younger generations (millennials mainly) were still engaged in unstable financial behaviors during the COVID-19 pandemic, as found in pre-pandemic studies, and how they coped with financial stress during the pandemic.

Consistent with prior research (e.g., Forbes et al., 2016), the results supported that the COVID-19 pandemic significantly increased financial stress across all generations. The findings further revealed significant generational differences in financial stress. Compared to the boomer generation, Gen Z, millennials, and Gen X showed significantly

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higher financial stress. This may be because the younger generations were working or entering the labor market. Results in this study also showed that a higher level of financial stress during COVID-19 was associated with several demographic characteristics, including being married, having children, having a low income, being in poor health conditions, and not having a full-time job.

Decreased responsible financial behaviors were found across all generations during COVID-19. As expected, financial stress was negatively associated with financial behaviors. As COVID-19 occurs, as individuals belong to younger generations, and as financial stress intensifies, the tendency to exhibit responsible financial behavior decreases. However, the result showed a different story when considering compounded effects (i.e., interaction terms). For instance, compared to the effects of COVID-19 and decreasing responsible financial behavior among different generations, we found that financial stress was a more important factor (i.e., coping mechanism) compared to generation by checking the effect of combination (i.e., COVID-19 × financial stress, and generation × financial stress). Specifically, it was found that the negative effect of financial stress on financial behavior was weakened during COVID-19. This suggests that having the appropriate level of financial stress can serve as a coping or defense mechanism to deal with a pandemic situation. A moderate stress level can likely benefit and increase one's future resilience. Interestingly, a similar pattern was found with the interactions between financial stress and generation. Financial stress's negative effects on a few payment behaviors were buffered, particularly with Gen Z and millennials.

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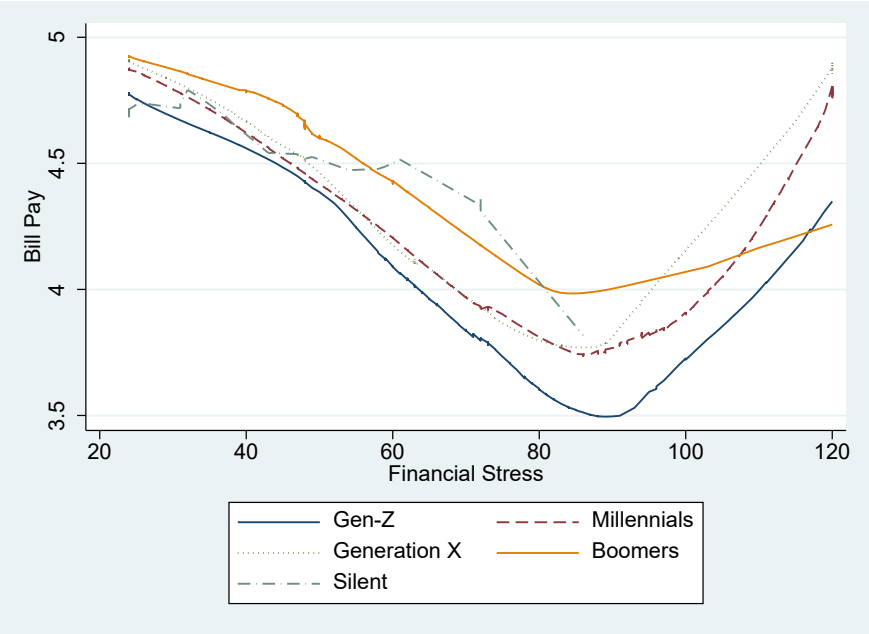
Figure 1.

Bill Payment by Financial Stress and Generations.



These findings suggest that younger generations, particularly millennials, have developed resilience to handle the pandemic. This is contrary to previous research findings. Specifically, as shown in Figures 2 and 3, the younger generations' lines are not shown as the lowest line in the figure, except for the bill payment case of Gen Z. Only in Figure 1, bill payment behavior, millennials, and Gen Z's lines were on the bottom, which suggests that the younger generations' bill payment behavior was lower compared to the older generation. However, considering that Gen Z is the lowest group in their wealth accumulation, their lower payments were understandable. Rather, the higher lines of millennials and Gen Z in Figures 2 and 3 indicate that the younger generations are responsible for their financial behavior better than the presumed expectations (e.g., younger generations are more irresponsible in their finance). One possible explanation is that younger generations may possess positive personalities or attitudes toward finance compared to previous generations, which contributes to their resilience (Harari et al., 2023; Henager & Cude, 2016). Despite the lower rates of financial capability among young consumers, Henager and Cude (2016) highlighted that younger cohorts can engage in positive financial behaviors with higher confidence, whereas older cohorts tend to rely on actual financial knowledge. Moreover, although Harari et al. (2023) found that Gen Z showed lower levels of resilience compared to Gen X, their study also emphasized that, despite lower resilience, Gen Z members displayed higher levels of openness to change and more positive attitudes toward flexible learning when compared to Gen X. Therefore, these findings suggest that while younger generations encountered difficulties in terms of financial capabilities, their willingness to adapt and embrace change coupled with their past bitter experiences may play a pivotal role in building their financial resilience.

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Figure 2.

Stay on a Budget by Financial Stress and Generations.

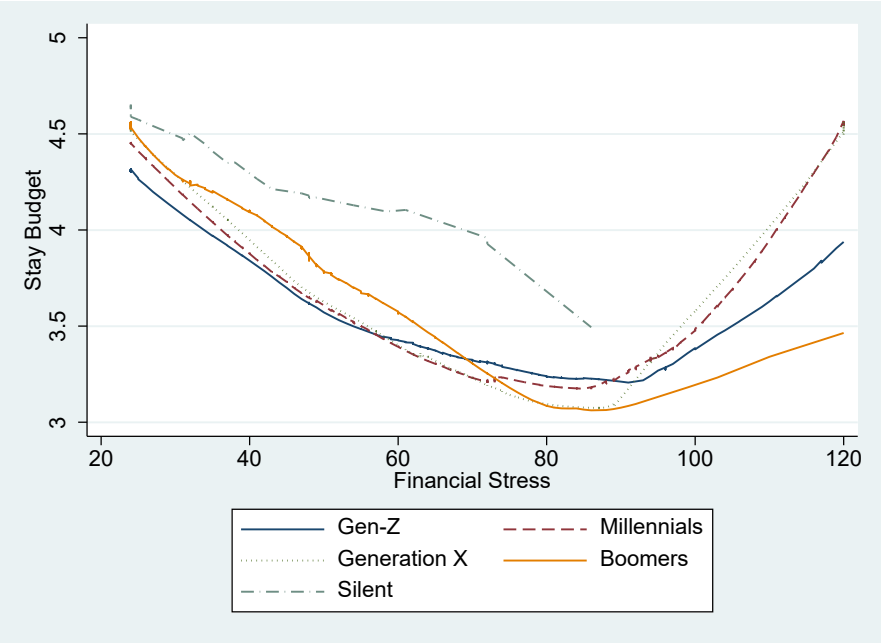
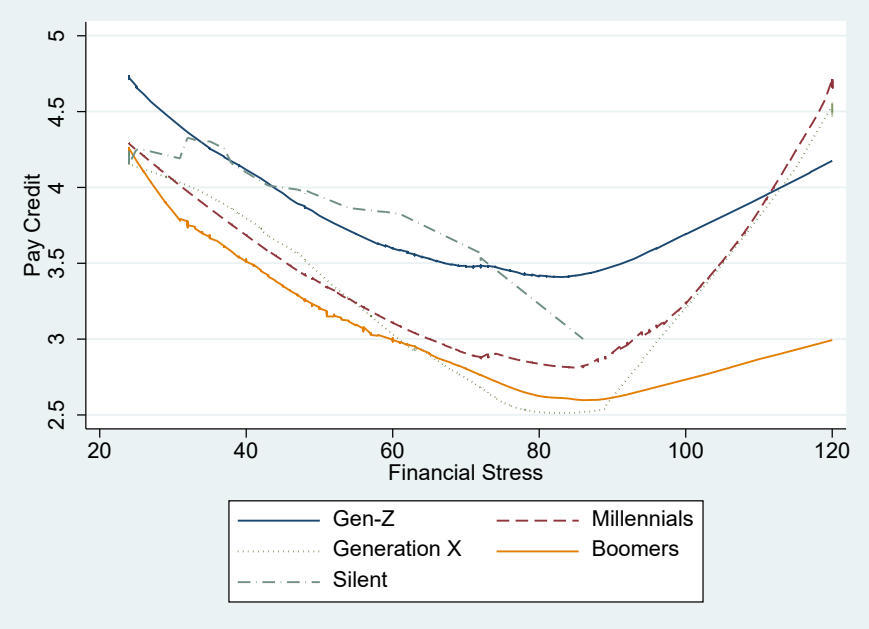


Figure 3.

Credit Payment by Financial Stress and Generations.



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Based on the results, the assumption that the younger generation may not be financially responsible is false. To gain a deeper understanding of why generational behaviors do not align with expectations, it may be beneficial to examine the underlying factor of age that defines these generations. When considering the age trend with financial behaviors, the generational divisions are not shown, as in Tables 5 to 7. The figures indicate that the trends are more likely linear or quadratic. The graphs in Tables 5 to 7 show no specific threshold for dividing people into specific generations. This means that the continuous value of age is more meaningful than the categorized generations.

Table 5 shows the linearity of responsible bill payment behavior. When observing responsible bill payment based on age, a gradual increase in linearity is found (beta = .01, $p < .001$). It indicates a significant and progressive increasing trend. However, if the variable is changed to group by generation instead of age, this linearity gets distorted because beta is estimated based on the group's average value within the same generation. For instance, looking at the graph before COVID-19, the oldest in the millennial generation (i.e., around the age of 43) shows a gradually increasing slope, which is not significantly different from the younger Gen X at age 45. In contrast, in the generation graph, the level of responsible bill payment for millennials is significantly lowered as it is forcibly adjusted to the average of the same group (millennials). Moreover, linearity appears to exist between groups, but the beta value for this linearity shows a much larger discrepancy (beta = .18, $p < .001$) compared to the case with age (beta = .01, $p < .001$). This comparison of graphs and beta values reveals that estimating by age uncovers a more accurate and clearer trend, while estimating by generation results in a measurement error due to forced averaging of responsible bill payments within the group. Additionally, the significant linearity found by using generation could lead to an overinterpretation that generation makes a significant difference. For a more accurate explanation, it should be the more accurate beta value of .01 for age rather than the overestimated beta value of .18 shown by generation.

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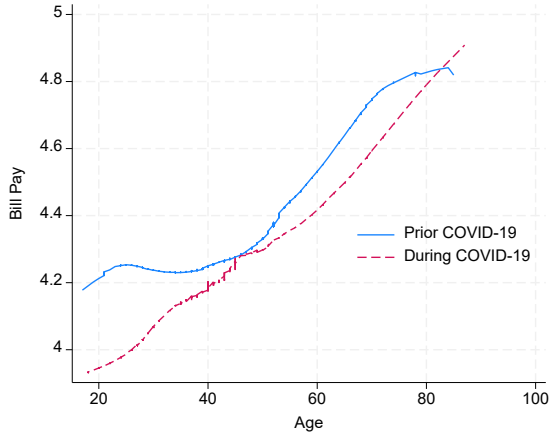
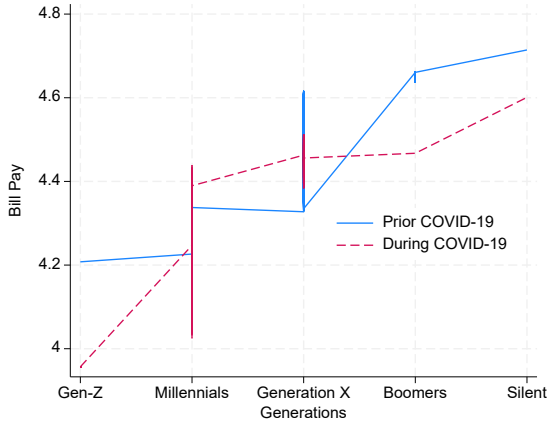
Table 5.

Linearity of Bill Payment Trend: Comparison Between Age and Generations.

Use Age as a Predictor



Use Generation as a Predictor



	b	Robust S.E.		*b*	Robust S.E.
Age	.01***	.00	Generation	.18***	.02
Constant	3.73***	.07	Constant	3.82***	.07
R^2	.04		R^2	.03	
F	80.35***		*F*	63.88***	

Note. * p < .05; ** p < .01; *** p < .001.

Similarly, Table 6 shows the linearity of responsible stay-in-budget behavior. A gradual increase in linearity is found when observing responsible stay-in-budget based on age (beta = .01, p < .001). The gradual linearity indicates a significant and progressive increasing trend. However, if the variable is changed to group by generation instead of age, this linearity gets distorted because beta is estimated based on the group's average value within the same generation. For a more accurate explanation, the coefficient should be the more accurate beta value of .01 for age rather than the overestimated beta value of .18 shown by generation.

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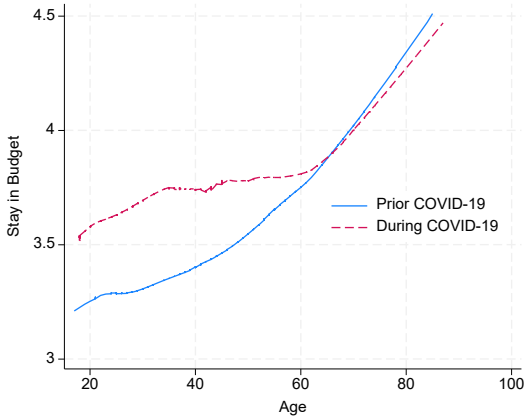
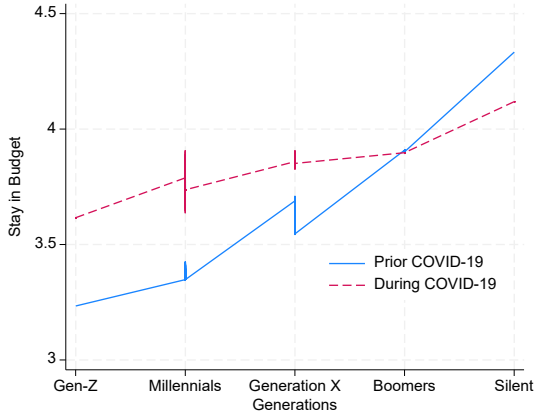
Table 6.

Linearity of Stay in Budget Trend: Comparison Between Age and Generations.

Use Age as a Predictor



Use Generation as a Predictor



	b	Robust S.E.		*b*	Robust S.E.
Age	.01***	.00	Generation	.14***	.03
Constant	3.22***	.08	Constant	3.29***	.07
R^2	.02		R^2	.02	
F	36.68***		*F*	31.75***	

Note. * p < .05; ** p < .01; *** p < .001

The same issue has been found in the case of full pay in credit behavior that the coefficient of age shows the more accurate effect of aging compared to the coefficient of generation. Table 7 shows the linearity of responsible full pay in credits. In the case of full credit payment, no significant linearity was found, as evidenced by the quadratic curve in the graph presented in Table 7. However, the figures for age and those grouped by generation show different inflection points. The trend line using age indicates that people tend to increase their responsible credit payments starting in their 40s. On the other hand, the figure using generation suggests that behavior changes start with millennials. While a wide range of ages (late 20s to early 40s) can be categorized as millennials, data suggest that millennials are not the same. Younger millennials (i.e., in their late 20s) are more likely to pay off their credit fully than older millennials (i.e., in their early 40s). However, it doesn't align well with observations. This discrepancy arises for the same reasons found in Tables 5 and 6. When grouping by categories such as generation, the group's average is used to estimate beta. Thus, late 20s and early 40s millennials are misleadingly described as exhibiting the same trend in behavior. Therefore, the coefficient to show the aging effect would be more precise to use age rather than generation for a more accurate explanation.

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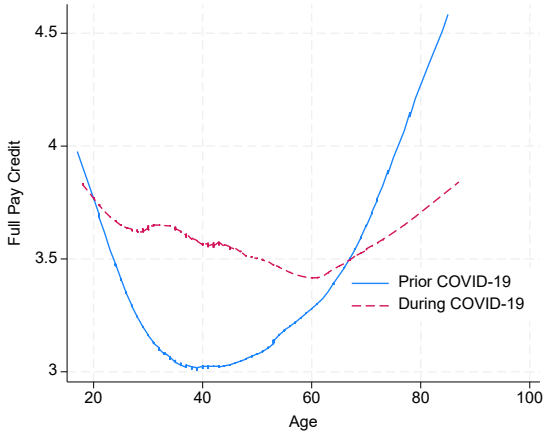
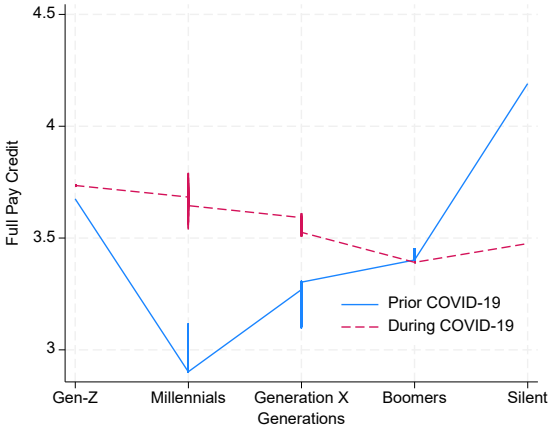
Table 7.

Linearity of Full Pay Credit Trend: Comparison Between Age and Generations.

Use Age as a Predictor



Use Generation as a Predictor



	b	Robust S.E.		*b*	Robust S.E.
Age	-.002	.00	Generation	-.04	.04
Constant	3.46***	.10	Constant	3.51***	.09
R^2	.001		R^2	.001	
F	.42		*F*	1.49	

Note. * p < .05; ** p < .01; *** p < .001

Various studies indicate increased depression and stress during COVID-19, and researchers warn that younger generations can be more vulnerable in their ability to handle such stressful circumstances. In addition, previous findings among millennials warned of unstable financial behavior and that COVID-19 has created a more challenging environment. In this study, the younger generations experienced higher financial stress during COVID-19. However, the findings in this study demonstrate that the younger generations, particularly millennials, are less vulnerable to such financial stress in managing their financial behaviors. Historical and social circumstances may help millennials to strengthen their ability to deal with challenging situations. It is also plausible that millennials became more mature and financially responsible throughout their lifespan.

The findings of the current research provide both academic and practical implications. First, this study showed how millennials and Gen Z generations have influenced changes in consumption payment behavior due to external crises such as COVID-19. The findings provide empirical evidence that can be used for further research and services to cope with another economic crisis that might be brought about by a pandemic such as COVID-19. Second, researchers and practitioners interested in the factors related to credit card payments (e.g., being female, income, education, and health status) and financial stress can utilize these findings for future financial education and planning of financial products during periods of rapid social change caused by COVID-19. For example, factors that can increase or decrease financial stress during an external crisis can provide consumers with the financial instruments they need during a financial

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crisis or major change and educate them on financial issues. Third, factors such as the number of children in a family, family income, as well as social and institutional changes and economic instability triggered by COVID-19, together with demographic elements, are closely associated with financial stress and alterations in credit card payment behaviors among consumers, particularly millennials and Gen Z, during the COVID-19 period. It is necessary to better understand the perception of post-COVID-19 financial payment behavior, financial stress, and the impact on credit card payments. Lastly, socio-demographic factors are important for understanding consumers' financial stress and payment behavior during the COVID-19 pandemic.

While our study sheds light on generational differences in financial behavior, it is important to acknowledge the criticism of overgeneralizing the generational approaches. Critics argue that focusing on age or life stage, rather than categorizing individuals into generations, may offer a more practical approach (Wong et al., 2008). Specifically, the lifespan perspective emphasizes age as a continuous variable rather than generational categories and focuses on ongoing developmental trajectories across various domains (Baltes et al., 1998). Therefore, Parker (2023) emphasizes a cautious approach to using generational classifications in research, outlining some key considerations: (a) the use of significant historical events should be the reason for the classification; (b) an acknowledgment that different generations coexist within the same era, sharing contemporary experiences; (c) a recognition that age may be a more appropriate measure than categorical generational labels; and (d) the necessity of a thorough understanding that includes controlling for various factors. As studies on the similarities within and differences between generations have explained, each generation may possess universal similarities unique to their era and distinctive differences from other generations. However, such intra-generational similarities and inter-generational differences may not be a universal truth for all behaviors or phenomena. Therefore, this study specifically investigated responsible financial behavior as an outcome, revealing that in this particular aspect, gradual changes according to age were observed rather than stark differences between generations.

This approach underscores the complexity and nuances involved in generational research. For instance, individuals' abilities, including financial capabilities, may increase, remain stable, or decrease over time based on age-related life transitions, such as adolescence, mid-life crises, and old age. Therefore, future studies should explore associations by considering life-stage factors (e.g., marriage, parenthood, and career development) and examine intergenerational differences.

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