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Cultural Orientation and Behavioral Responses to Crisis: A Study of College Students' Mental Well-Being and Coping Strategies in the Appalachian Region

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ABSTRACT

The COVID-19 pandemic significantly disrupted individuals' lives worldwide, affecting not only physical health but also mental well-being. Personal cultural orientations played a crucial role in shaping psychological responses and preventive behaviors during this global crisis. This study investigated the impact of personal cultural orientations on college students' mental health, particularly focusing on anxiety levels, coping strategies, and adherence to preventive measures during the pandemic. A sample of 155 college students participated in the study by completing measures assessing various cultural dimensions, including independence, ambiguity intolerance, masculinity, and gender equality, alongside assessments of their mental health status and COVID-19 prevention behaviors.

The findings revealed several key relationships. Higher levels of independence were not significantly associated with less mental distress, more active coping strategies and preventive behaviors, suggesting that independence alone may not predict adaptive responses during prolonged crisis. Meanwhile, ambiguity intolerance, the tendency to struggle with uncertainty—was associated with increased mental health challenges but also led to a higher likelihood of engaging in both coping mechanisms and preventive behaviors. A notable pattern emerged with masculinity, as students with higher masculinity scores reported lower mental distress and demonstrated lower participation in coping strategies and health-related precautions. In contrast, students who scored higher on gender equality exhibited greater mental distress but were more likely to engage in adaptive coping behaviors and health precautions. Additionally, gender and socioeconomic status influenced responses, female students experienced higher anxiety and utilized more coping strategies, while students from higher-income households reported greater mental stress. These results highlight the importance of cultural orientations in shaping crisis responses.

Keywords: personal cultural orientations, COVID-19, mental health, coping strategies, anxiety, preventive behaviors

INTRODUCTION

The outbreak of the COVID-19 pandemic in 2020 triggered a global crisis, significantly impacting both physical and mental health (Lancaster & Arango, 2021). As of December 2022, more than 650 million cases and 6.6 million fatalities had been reported worldwide, with the United States, India, France, Germany, Brazil, and South Korea experiencing the highest case counts (World Health Organization, 2022). The psychological toll of the pandemic varied based on external environmental factors, including economic, social, and cultural influences. Numerous studies have highlighted that the pandemic disproportionately affected low-income families compared to high-income ones (e.g., Chen et al., 2021). This study focused on a particularly vulnerable population—college students in the Appalachian region—to examine their behavioral and psychological responses to the pandemic. Specifically, we investigated how personal cultural orientations influenced their mental health and coping strategies.

We centered our attention on college students in the Appalachian region for two primary reasons. First, the Appalachian region—spanning the central and southern Appalachian Mountains in eastern North America—is one of the most economically disadvantaged areas in the United States, characterized by high poverty and unemployment rates, limited access to healthcare, and underdeveloped infrastructure (Hill, 2002; Lee et al., 1999; Morrone et al., 2021). Consequently, residents in this region were especially susceptible to the adverse effects of the pandemic. Second, college students in Appalachia faced compounded challenges, including forced campus evacuations, social isolation, and the transition to remote learning under difficult conditions, such as unstable electricity, limited internet access, and a lack of reliable digital devices (Copeland et al., 2021).

Previous research has examined how national cultural differences shaped behavioral responses to COVID-19. For instance, studies have explored the interplay between institutional mechanisms and cultural underpinnings in shaping policy decisions (Nair et al., 2022). Despite similar regulatory measures, countries with different cultural frameworks demonstrated distinct behavioral responses and policy outcomes, as seen in the contrasting effects of lockdowns in India and China (Ding et al., 2021). However, most research has focused on national cultural orientations, with limited attention given to personal cultural orientations and their impact on psychological and behavioral responses.

Personal cultural orientations are conceptually and empirically distinct from national cultural dimensions. While national cultural dimensions reflect the predominant values of a society, personal cultural orientations stem from individuals' socialization experiences, resulting in diverse cultural traits even among individuals from the same country (Sharma, 2010). Research suggests that personal cultural orientations influence behaviors and ultimately shape well-being during crises such as COVID-19 (Nair et al., 2022).

To bridge this gap, our study examined the relationships among personal cultural orientations—specifically, independence, ambiguity intolerance, masculinity, and gender

equality—mental health outcomes (e.g., anxiety), active coping strategies, and preventive behaviors. We sought to answer the following research questions:

1. How did personal cultural orientations influence college students' mental well-being during the pandemic?
2. How did personal cultural orientations affect students' coping strategies in response to the pandemic?

We proposed that students with different cultural orientations exhibited distinct behavioral patterns and varying degrees of mental resilience when faced with pandemic-related challenges.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Although Geert Hofstede himself cautioned against using Hofstede's cultural dimensions directly to the individual level (Hofstede, 2001), they have been widely applied to individuals and showed insufficient construct validity and reliability. The correlations among the items used to measure national culture in Hofstede's study are strong and significant at the aggregate national level but are generally weak and inconsistent at the individual level (Brewer & Venaik, 2012). To better capture individual differences in cultural orientations, we adopt Sharma's (2010) multi-dimensional scale, which has been empirically validated for use in culture research at the individual level (e.g., Sreen et al., 2017; Su et al., 2022). This approach allows us to assess personal cultural orientations in consumer behavior and, in this case, student behavior during the pandemic.

Our study focuses on four dimensions of personal cultural orientations identified by Sharma: Independence, Ambiguity Intolerance, Masculinity, and Gender Equality.

- Independence refers to a personal orientation associated with self-reliance, autonomy, a strong self-concept, and a focus on personal achievement.
- Ambiguity Intolerance reflects an individual's ability to tolerate uncertainty and ambiguous situations.
- Masculinity encompasses assertiveness, self-confidence, ambition, and competitiveness.
- Gender Equality represents the extent to which individuals perceive men and women as equal in terms of social roles, capabilities, rights, and responsibilities.

Nair et al. (2022) highlights the significant role of culture in shaping behavior, arguing that "if culture has the potency to supplement or replace policy, it merits attention to understand the cultural dimensions shaping and guiding behavior, which can augment policy-level interventions to manage the ongoing pandemic" (p. 1211). Following this perspective, we examined how personal cultural orientations influence students' psychological well-being and behavioral responses during the pandemic.

To assess mental health outcomes, we used the Hospital Anxiety and Depression Scale (HADS) developed by Zigmond and Snaith (1983) to measure the key

aspect of psychological well-being: anxiety. Coping strategies are analyzed using the Brief COPE questionnaire (Carver, 1997), which evaluates behaviors such as seeking emotional or instrumental support. Finally, adherence to preventive behaviors is measured using the World Health Organization COVID-19 Survey Tool and Guidance, which assesses actions taken to minimize exposure to COVID-19.

Independence

In individualistic cultures, social relationships are characterized by relatively loose ties, and individuals are expected to prioritize personal responsibility and autonomy over group reliance (Hofstede, 2001; Sharma, 2010). Individualism is strongly associated with independence, whereas collectivism emphasizes interdependence (Oyserman et al., 2002). Independent individuals prioritize personal goals, attitudes, needs, and rights over group objectives and often engage in a cost-benefit analysis of relationships (Markus & Kitayama, 1991).

Research has shown that social isolation is linked to adverse health outcomes, including depression (Novotney, 2019). Loneliness negatively impacts physical, mental, and cognitive health (Hawkley & Capitanio, 2015). However, highly independent individuals tend to be self-reliant, strong-willed, and resilient in overcoming such challenges. As a result, they are more likely to adapt quickly and maintain normal functioning during periods of social disruption, such as the COVID-19 pandemic. Additionally, independent individuals are typically proactive problem-solvers, actively seeking solutions to challenges they face.

Based on this reasoning, we proposed the following hypothesis:

H1: Individuals with higher levels of independence will experience less anxiety and will be more likely to engage in active coping strategies and preventive behaviors compared to those with lower levels of independence.

Ambiguity Intolerance

Ambiguity intolerance refers to the degree to which individuals feel uncomfortable or distressed when faced with uncertainty (Hofstede, 2001). This trait is closely linked to emotional distress, making it a significant risk factor for mental health issues (Petrocchi et al., 2021). Individuals with high levels of ambiguity intolerance often struggle when their environment lacks structure and predictability. Given that the COVID-19 pandemic disrupted daily routines and introduced significant uncertainty, those with high ambiguity intolerance are likely to experience heightened mental stress.

Furthermore, individuals who are intolerant of ambiguity typically desire a return to stability and order. As a result, they are more likely to actively seek solutions, comply with regulations, and engage in coping strategies aimed at restoring their previous way of life.

Based on these considerations, we propose the following hypothesis:

H2: Individuals with higher levels of ambiguity intolerance will experience more anxiety and will more actively engage in coping strategies and preventive behaviors compared to those with lower levels of ambiguity intolerance.

Masculinity

Masculinity refers to the degree to which a society prioritizes values traditionally associated with assertiveness, achievement, material success, and individual self-interest, as opposed to values that emphasize quality of life, interpersonal care, and social well-being (Hofstede, 2001). In contrast to more feminine societies, which emphasize empathy and cooperation, masculine societies tend to value competitiveness, independence, and dominance.

Individuals with higher levels of masculinity are often more materialistic, self-reliant, and confident in their personal strength, and they may perceive themselves as less vulnerable to external threats (Sharma, 2010). In the context of a public health crisis such as the COVID-19 pandemic, acknowledging psychological distress or engaging in preventive health behaviors may be perceived as signs of weakness, thereby threatening their self-image. As a result, individuals with strong masculine orientations may be less inclined to report anxiety, adopt coping strategies, or follow preventive health behaviors. Their perceived invulnerability and emphasis on self-sufficiency may reduce both their emotional disclosure and willingness to engage in protective actions.

Based on these observations, we proposed the following hypothesis:

H3: Individuals with higher levels of masculinity will experience less anxiety and will engage less in coping strategies and preventive behaviors compared to those with lower levels of masculinity.

Gender Equality

Gender equality refers to the extent to which individuals perceive men and women as equal in terms of responsibilities, social roles, and capabilities (Schwartz & Rubel-Lifschitz, 2009). Individuals with higher levels of gender equality are less likely to adhere to traditional gender norms that may constrain emotional expression or health-related behaviors (Sharma, 2010). For example, they are less influenced by stereotypical expectations such as men suppressing vulnerability to appear strong or women internalizing helplessness in the face of external threats.

As a result, individuals who endorse gender equality may feel more empowered to express psychological distress, thereby reporting higher levels of anxiety in response to crisis like the COVID-19 pandemic. At the same time, they are also more likely to engage in proactive coping strategies and preventive health behaviors, as they approach public health threats as shared societal challenges rather than experiences mediated by gendered expectations.

Based on this reasoning, we proposed the following hypothesis:

H4: Individuals with higher levels of gender equality will experience more anxiety and will more actively engage in coping strategies and preventive behaviors compared to those with lower levels of gender equality.

METHODOLOGY

Method and Sampling

This study employed a quantitative research approach to explore how personal cultural orientations impacted college students' mental health, coping strategies, and preventive behaviors during the COVID-19 pandemic in the Appalachian region. This research specifically focused on undergraduates at Eastern Kentucky University (EKU), located in Madison County, one of the 54 Appalachian counties in Kentucky as designated by the Appalachian Regional Commission (ARC). Additionally, the majority of EKU students come from the Appalachian region. Therefore, the participants in this study can well represent the population in the Appalachian region.

After obtaining initial IRB approval, a survey was developed based on four well-established scales: Sharma's personal cultural orientations scale (2010), the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), the WHO COVID-19 Survey Tool and Guidance (World Health Organization, 2020), and the Brief COPE scale (Carver, 1997). These instruments were used to assess the influence of personal cultural orientations on students' psychological and behavioral responses during the pandemic.

Data collection occurred anonymously from October to December 2022 using an online survey administration tool (www.qualtrics.com). Participants were asked to read a consent form and agree to participate in the study. All constructs were measured using a 5-point Likert-type scale. Checking questions were embedded throughout the survey to ensure the reliability of responses. Participants who failed to answer these checking questions correctly were excluded from the final dataset.

The initial round of data collection yielded 194 responses. After removing incomplete responses, 155 responses remained for analysis. The final sample consisted of 56.1% females and 41.3% males, with the majority representing the College of Business and the College of Science, Technology, Engineering, and Mathematics (STEM). The sample's ethnic composition was predominantly Caucasian.

SPSS was used to perform independent samples t-test analyses to test the study's hypotheses. Specifically, independent t-tests were conducted to compare mean differences between individuals with high and low levels of independence, ambiguity intolerance, masculinity, and gender equality, using anxiety, coping strategies, and preventive behaviors as dependent variables.

Measurement Instruments

Personal cultural orientations of independence, ambiguity intolerance, masculinity, and gender equality were assessed using Sharma's scale of personal cultural orientations (Sharma, 2010). This scale conceptualizes cultural orientations at

the individual level, rather than the national level, which aligns with the focus of our study on college students who, while sharing the same geographic background, may still exhibit diverse personal orientations.

Anxiety and depressive symptoms were measured using the Hospital Anxiety and Depression Scale (HADS). This 14-item self-report questionnaire assesses the intensity of both anxiety and depressive symptoms. For the purposes of this study, we focused specifically on the anxiety component of the scale.

Coping strategies were assessed using the Brief COPE, a self-report scale that measures 14 distinct coping strategies. These strategies are categorized into adaptive strategies (such as active coping, planning, instrumental support, use of emotional support, venting, positive reframing, humor, acceptance, and religion) and maladaptive strategies. Our study specifically focused on the problem-focused strategies of active coping, planning, and using instrumental support, as these strategies are most relevant to addressing the challenges posed by the pandemic.

Finally, the World Health Organization (WHO) Survey Tool and Guidance for COVID-19 was utilized to develop questions assessing various preventive behaviors, such as handwashing, social distancing, mask-wearing, and reducing in-person gatherings, all of which were critical in mitigating the spread of the virus during the pandemic.

RESULTS

Among the 155 respondents, 41.29% were male and 56.13% were female. The majority of respondents were majoring in Business (36.77%) or STEM (31.61%). Other college departments represented include the College of Education (9.03%), College of Health Sciences (7.74%), College of Justice, Safety, and Military Sciences (1.29%), College of Letters, Arts, and Social Sciences (11.60%), and Undeclared/Others (1.94%).

Regarding household income, 22.58% of respondents came from low-income households (earning less than $20,000 annually), while 39.4% were from high-income households (earning more than $60,000 annually). Table 1 provides a summary profile of respondents.

In terms of ethnicity, the sample was predominantly Caucasian/White (82.58%), followed by African American (4.52%), Asian/Pacific Islander (4.52%), Hispanic (4.52%), American Indian/Alaska Native (0.65%), and Other (3.23%).

A Pearson correlation coefficient was calculated to examine the linear relationships between personal cultural orientations, anxiety, coping strategies, prevention behaviors, and various demographic variables. The results revealed several significant correlations: Independence was strongly correlated with ambiguity intolerance and gender equality. Ambiguity intolerance showed high correlations with independence, gender equality, problem-based coping, prevention behavior, anxiety, and gender. Masculinity was significantly correlated with gender equality, problem-

based coping, prevention behavior, anxiety, gender, and college department. Gender equality demonstrated strong correlations with independence, ambiguity intolerance, masculinity, problem-based coping, prevention behavior, anxiety, and gender. Table 2 provides the summary of correlation matrix.

Table 1. Profile of Respondents (n=155)

Variable	Groups	Percentage
Gender	Male	41.29%
	Female	56.13%
	Non-binary	2.58%
College/Department	Business	36.77%
	Education	9.03%
	Health Sciences	7.74%
	Justice, Safety, and Military Service	1.29%
	Letters, Arts, and Social Sciences	11.60%
	STEM	31.61%
	Others	1.94%
Yearly household	Under $20,000	22.58%
income	$20,000-$39,999	9.68%
	$40,000-$59,999	12.90%
	$60,000-$79,999	15.48%
	$80,000-$99,999	10.97%
	$100,000-$119,999	14.19%
	$120,000-$139,999	5.16%
	$140,000 or more	9.03%
Ethnicity	White	82.58%
	African American	4.52%
	Asian/Pacific Islander	4.52%
	Hispanic	4.52%
	American Indian/Alaska Native	0.65%
	Others	3.23%

In this study, independent t-test was used to assess the hypotheses. Specifically, we examined if anxiety, problem based coping strategies, and preventive behavior vary depending on the level of each cultural orientation. As shown in Table 3, H1 was not supported, while H2, H3 and H4 were fully supported. Specifically, the findings showed that the level of anxiety in the low-independence group (M = 2.94, S.D. = 0.66) did not significantly differ from that in the high-independence group (M = 2.76, S.D. = 0.86, t = -1.34, p = 0.18). Moreover, engagement in problem based coping strategy in the low-

independence group (M = 3.36, S.D. = 0.89) did not significantly differ from that in the high-independence group (M = 3.35, S.D. = 1.10, t = -0.97, p = 0.33). Finally, prevention behavior in the low-independence group (M = 3.69, S.D. = 1.00) did not significantly differ from that in the high-independence group (M = 3.78, S.D. = 1.31, t = -0.43, p = 0.67). Therefore, H1 was rejected.

Table 2. Correlation matrix

	1	2	3	4	5	6	7	8	9	10
1 Independence	1									
2 Ambiguity avoidance	0.20*	1								
3 Masculinity	0.07	-0.09	1							
4 Gender equality	0.36***	0.40***	-0.25**	1						
5 Anxiety	-0.04	0.41***	-0.25**	0.19*	1					
6 Coping strategy	0.14	0.31***	-0.36***	0.31***	0.38***	1				
7 Prevention behavior	0.1	0.30***	-0.38***	0.34***	0.25**	0.67***	1			
8 Gender	0.04	0.42***	-0.28***	0.30***	0.36***	0.27***	0.32***	1		
9 College	-0.1	-0.08	-0.24**	-0.21**	0.01	-0.05	0.07	-0.04	1	
10 Household income	-0.01	-0.04	-0.02	-0.08	0.10	0.04	-0.02	-0.09	0.18*	1
11 Ethnicity	0.02	-0.14	0.05	-0.06	-0.16*	0.03	0.01	0.01	-0.10	-0.24**

In addition, the findings showed that people with low ambiguity intolerance demonstrated lower anxiety (M = 2.55, S. D. = 0.63), engagement in problem based coping strategy (M = 3.19, S. D. = 1.02), and prevention behavior (M = 3.51, S.D. = 1.19) than those with high ambiguity intolerance (M anxiety = 3.12, S. D. anxiety = 0.78, t = -4.60, p < 0.001; M coping strategy = 3.72, S. D. cooping strategy = 0.93, t = -3.15, p < 0.001; M prevention behavior = 4.14, S. D. prevention behavior = 1.05, t = -3.22, p < 0.001). Collectively, H2 was supported.

Consistent with H3, which hypothesizes that masculinity is negatively related to anxiety, problem based coping strategy, and prevention behavior, the finding showed that people with low masculinity exhibited higher anxiety (M = 3.09, S. D. = 0.79),

engagement in problem based coping strategy (M = 3.82, S. D. = 0.93), and prevention behavior (M = 4.22, S.D. = 1.06) than those with high ambiguity intolerance (M anxiety = 2.68, S. D. anxiety = 0.74, t = 3.07, p < 0.001; M coping strategy = 3.13, S. D. cooping strategy = 1.10, t = 4.09, p < 0.01; M prevention behavior = 3.41, S. D. prevention behavior = 1.19, t = 4.11, p < 0.001). Therefore, H3 was supported.

Finally, the findings showed that people with low levels of gender equality demonstrated lower anxiety (M = 2.60, S. D. = 0.63), engagement in problem based coping strategy (M = 3.09, S. D. = 0.99), and prevention behavior (M = 3.29, S.D. = 1.19) than those with high levels of gender equality (M anxiety = 2.97, S. D. anxiety = 0.82, t = -2.91, p < 0.01; M coping strategy = 3.68, S. D. cooping strategy = 0.98, t = -3.38, p < 0.001; M prevention behavior = 4.06, S. D. prevention behavior = 1.10, t = -3.73, p < 0.001). Collectively, H4 was supported.

Table 3. Independent Sample T-test Results

Dependent variables					
	Independence				
	Low	High	t-value	p-value	H1 was rejected
Anxiety	2.94 (0.66)	2.76 (0.86)	-1.34	0.18	
Problem based coping strategy	3.36 (0.89)	3.53 (1.10)	-0.97	0.33	
Prevention behavior	3.69 (1.00)	3.78 (1.31)	-0.43	0.67	
	Ambiguity intolerance				
	Low	High	t-value	p-value	
Anxiety	2.55 (0.63)	3.12 (0.78)	-4.60	<0.001	H2 was supported
Problem based coping strategy	3.19 (1.02)	3.72 (0.93)	-3.15	<0.01	
Prevention behavior	3.51 (1.19)	4.14 (1.05)	-3.22	<0.01	
	Masculinity				
	Low	High	t-value	p-value	
Anxiety	3.09 (0.79)	2.68 (0.74)	3.07	<0.01	H3 was supported
Problem based coping strategy	3.82 (0.93)	3.13 (1.10)	4.09	<0.001	
Prevention behavior	4.22 (1.06)	3.41 (1.19)	4.11	<0.001	
	Gender equality				
	Low	High	t-value	p-value	
Anxiety	2.60 (0.63)	2.97 (0.82)	-2.91	<0.01	H4 was supported
Problem based coping strategy	3.09 (0.99)	3.68 (0.98)	-3.38	<0.001	
Prevention behavior	3.29 (1.19)	4.06 (1.10)	-3.73	<0.001	

Additional Findings

In addition to our main findings, we explored demographic differences and their implications on mental health, coping strategies, and prevention behaviors during the COVID-19 pandemic (see Table 4). Our results indicated the following:

- *Gender differences*: Females reported higher anxiety levels and engaged more in problem-based coping and prevention behaviors compared to males.
- *College department*: Students from the College of Business and the College of STEM showed no significant differences in anxiety levels, nor did they differ in their engagement in problem-based coping strategies or prevention behaviors.
- *Household income*: Students from higher-income households (those earning more than $60,000 annually) exhibited higher anxiety levels than students from lower-income households (those earning less than $20,000 annually).
- *Ethnicity*: White students showed no significant differences in anxiety levels, problem-based coping strategies, or prevention behaviors from non-white students.

Table 4. Additional Findings

Dependent variable				
	Gender			
	Male (n=64)	Female (n=87)	T-value	P-value
Anxiety	2.73 (1.07)	3.07 (1.19)	-4.27	<0.001
Problem based coping strategy	3.17 (1.02)	3.65 (0.92)	-2.98	<0.001
Prevention behavior	3.37 (1.13)	4.09 (1.05)	-3.99	<0.001
	Major			
	Business (n=57)	STEM (n=49)	T-value	P-value
Anxiety	2.76 (0.64)	2.82 (0.79)	-0.39	0.70
Problem based coping strategy	3.49 (0.94)	3.41 (1.10)	0.43	0.67
Prevention behavior	3.75 (1.01)	3.89 (1.11)	-0.68	0.49
	Household Income			
	<$20,000 (n=35)	>$60,000(n=85)	T-value	P-value
Anxiety	2.60 (0.81)	2.92 (0.73)	-2.04	<0.05
Problem based coping strategy	3.35 (1.02)	3.45 (1.05)	-0.47	0.64
Prevention behavior	3.71 (1.08)	3.71 (1.23)	0.00	0.99
	Ethnicity			
	White (n = 128)	Non-white (27)	T-value	P-value
Anxiety	2.92 (0.74)	2.59 (0.81)	-1.95	0.06
Problem based coping strategy	3.41 (1.02)	3.72 (0.80)	-1.74	0.09
Prevention behavior	3.75 (1.13)	4.06 (1.15)	-1.25	0.21

DISCUSSION AND IMPLICATIONS

Practical Implications

College students in the Appalachian region exhibited diverse cultural orientations that influenced their psychological responses and health-related behaviors during public health crises such as the COVID-19 pandemic. It is well documented that the pandemic had a significant impact on individuals' mental health, particularly during lockdowns, when anxiety and depressive symptoms intensified due to social isolation, disrupted routines, and limited support systems.

Contrary to expectations, our results showed that H1 was not supported. Individuals with higher levels of independence did not report significantly lower anxiety or higher engagement in coping strategies and preventive behaviors. This suggests that independence alone may not be a sufficient predictive factor during extended crisis, possibly due to the overwhelming and prolonged nature of the pandemic, which even self-reliant individuals could not easily navigate without support.

In contrast, H2 was fully supported. Individuals with higher levels of ambiguity intolerance experienced greater anxiety and were more active in both coping strategies and preventive behaviors. This finding highlights the psychological burden that uncertainty imposes, especially for those who struggle with ambiguous or evolving information. For these individuals, the unpredictability of COVID-19 likely triggered heightened stress responses, prompting them to seek control through proactive coping and health behaviors. These findings underscore the importance of providing students with clear, consistent, and accessible information during crises. Institutions should offer timely guidance through informational sessions, virtual town halls, and structured Q&A platforms to help reduce uncertainty and build psychological resilience among students with low ambiguity tolerance.

H3 was also supported, indicating that individuals with higher levels of masculinity reported lower anxiety and were less likely to engage in coping strategies and preventive behaviors. This supports the notion that adherence to traditional masculine norms—emphasizing strength, stoicism, and self-reliance—may discourage the expression of vulnerability and reduce engagement with protective health behaviors. During a crisis, such norms may lead individuals to underreport anxiety and avoid behaviors perceived as "weak," such as mask-wearing or seeking help. Institutions should be aware of these cultural dynamics and offer less formal, stigma-free spaces, such as peer-led support groups or anonymous mental health chat platforms, where students socialized into masculine norms can discuss their concerns without fear of judgment.

H4 was likewise supported that individuals with higher levels of gender equality reported higher anxiety and were more engaged in coping strategies and preventive behaviors. This finding suggests that those with more egalitarian views may be more emotionally attuned and more open to engaging in protective actions, seeing the pandemic as a collective challenge rather than one shaped by traditional gender roles.

Their heightened anxiety may reflect a greater awareness of shared vulnerability rather than personal weakness. These students appear more willing to confront challenges head-on and take responsibility for public health, regardless of gendered expectations. To support this group, institutions should reinforce inclusive messaging and promote health education campaigns grounded in equity and shared responsibility.

Taken together, these findings highlight the importance of recognizing and addressing the role of personal cultural orientations in students' mental health and health behaviors. Institutions should avoid one-size-fits-all approaches and instead tailor mental health and public health initiatives to account for individual differences in cultural values. Initiatives that promote gender equality, support healthy emotional expression, and provide consistent and transparent communication can strengthen students' psychological resilience and foster more engagement in coping strategies and prevention behaviors. Together these efforts contribute to a more inclusive and responsive campus health environment.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

While this study contributes to the understanding of how personal cultural orientations shape students' psychological and behavioral responses during the COVID-19 pandemic, several limitations must be acknowledged. The data were drawn from a single university in the Appalachian region, and the relatively small sample size (N = 155) limits the generalizability of the findings. Future research should involve a broader and more diverse sample, incorporating students from other institutions, as well as different age groups, employment status, and ethnic backgrounds across the Appalachian region.

Additionally, because the data were collected retrospectively, participants' responses may be subject to recall bias, particularly in terms of how they perceived their behaviors and emotions during earlier stages of the pandemic. Longitudinal studies would provide more accurate insight into how cultural orientations influence adaptation over time. Finally, future research might explore additional cultural dimensions, such as collectivism or uncertainty avoidance, and examine their interaction with institutional support mechanisms to provide a more comprehensive understanding of student well-being in crisis contexts.

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Appendix: Survey Instrument

PERSONAL CULTURAL ORIENTATIONS
Please indicate to what extent you agree with the following statements.
(Independence)

	Strongly Disagree						Strongly Agree
I would rather depend on myself than others.	○	○	○	○	○	○	○
My personal identity, independent of others, is important to me.	○	○	○	○	○	○	○
I rely on myself most of the time, rarely on others.	○	○	○	○	○	○	○
It is important that I do my job better than others.	○	○	○	○	○	○	○
I enjoy being unique and different from others in many respects.	○	○	○	○	○	○	○

Please indicate to what extent you agree with the following statements.
(Ambiguity Intolerance)

	Strongly Disagree						Strongly Agree
I find it difficult to function without clear directions and instructions.	○	○	○	○	○	○	○
I prefer specific instructions to broad guidelines.	○	○	○	○	○	○	○
I tend to get anxious easily when I don't know an outcome.	○	○	○	○	○	○	○
I feel stressful when I cannot predict consequences.	○	○	○	○	○	○	○
I feel safe when I am in my familiar surroundings.	○	○	○	○	○	○	○

Please indicate to what extent you agree with the following statements.
(Masculinity)

	Strongly Disagree						Strongly Agree
Women are generally more caring than men.	○	○	○	○	○	○	○
Men are generally physically stronger than women.	○	○	○	○	○	○	○
Men are generally more ambitious than women.	○	○	○	○	○	○	○
Women are generally more modest than men.	○	○	○	○	○	○	○
Men are generally more logical than women.	○	○	○	○	○	○	○

Please indicate to what extent you agree with the following statements **(Gender Equality)**							
	Strongly Disagree						Strongly Agree
It is ok for men to be emotional sometimes.	○	○	○	○	○	○	○
Men do not have to be the solo bread winner in a family.	○	○	○	○	○	○	○
Men can be as caring as women.	○	○	○	○	○	○	○
Women can be as ambitious as men.	○	○	○	○	○	○	○
Men and women can be equally aggressive.	○	○	○	○	○	○	○

PREVENTION BEHAVIOR Please recall your overall behavioral pattern during the COVID 19 pandemic in 2020 and 2021, then indicate to what extent you agree with the following statements.							
	Strongly Disagree			Neutral			Strongly Agree
I preferred to wear a mask during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I preferred to maintain social distancing during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
Please select “Neutral” for this question.	○	○	○	○	○	○	○
I washed my hands more frequently during the COVID 19 pandemic in 2020 and 2021 than pre-COVID 19.	○	○	○	○	○	○	○
I reduced my in-person social activities (e.g. eating out, group partying, visiting friends etc.) during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○

MENTAL HEALTH - Anxiety Please recall your overall behavioral pattern during the COVID 19 pandemic in 2020 and 2021, then indicate to what extent you agree with the following statements. **(Hospital Anxiety and Depression Scale -- HADS)**							
	Not at all			Sometimes			Most of the time
I felt tense or “wound up” during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I enjoyed the things I used to enjoy during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I got a sort of frightened feeling as if something awful was about to happen during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○

I could laugh and see the funny side of things during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
Worrying thoughts went through my mind during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
Please select “sometimes” for this question.	○	○	○	○	○	○	○
I felt cheerful during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I could sit at ease and feel relaxed during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I felt as if I was slowed down during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I got a sort of frightened feeling like ‘butterflies’ in the stomach during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I had lost interest in my appearance during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I felt restless as I had to be on the move during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I looked forward with enjoyment to things during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I got sudden feelings of panic during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I could enjoy a good book or radio or TV during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○

BRIEF COPING STRATEGIES
Please recall your overall behavioral pattern during the COVID 19 pandemic in 2020 and 2021, then indicate to what extent you agree with the following statements.
(Active Coping)

	Strongly Disagree						Strongly Agree
I had been concentrating my efforts on protecting myself from contracting virus during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I had been taking actions to protect myself from contracting virus during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○

Please recall your overall behavioral pattern during the COVID 19 pandemic in 2020 and 2021, then indicate to what extent you agree with the following statements. **(Planning)**							
	Strongly Disagree						Strongly Agree
I had been trying to come up with a strategy about how to protect myself from contracting virus during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I had been thinking hard about what steps to take to protect myself from contracting virus during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○

Please recall your overall behavioral pattern during the COVID 19 pandemic in 2020 and 2021, then indicate to what extent you agree with the following statements. **(Using Instrumental Support)**							
	Strongly Disagree						Strongly Agree
I had been trying to get advice or help from other people about how to protect myself from contracting virus during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○
I had been getting help and advice from other people about how to protect myself from contracting virus during the COVID 19 pandemic in 2020 and 2021.	○	○	○	○	○	○	○

What is your gender?
○ Male
○ Female
○Others

Which college of the University are you currently attending for your degree?
○ College of Business
○ College of Education
○ College of Health Sciences
○ College of Justice, Safety, & Military Science
○ College of Letters, Arts, & Social Sciences
○ College of STEM
○ Others

What was your household income before taxes last year?
○ Under $20,000
○ $20,000-$39,999
○ $40,000-$59,999
○ $60,000-$79,999
○ $80,000-$99,999
○ $100,000-$119,999
○ $120,000-$139,999
○ $140,000 or more