Cultural Differences in Coping Among High School Students

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Currently, there is minimal research examining coping, mental health, and culture. Available studies that address differences in coping between racial/ethnic and other cultural groups focus mainly on adults or college students. To address the literature gap, this study was conducted to determine any cultural differences among high school students in terms of their coping styles regarding their mental health. Students completed a Qualtrics survey consisting of a racial/ethnic group question (cultural identification), the 28-question Brief COPE instrument, and several reflection questions that addressed the cultural relevance of the Brief COPE and allowed respondents to provide input on recommended changes. The study sample included students that were culturally diverse reflecting the general demographics of their school. There was a statistically significant difference in both emotion-focused and avoidant coping styles between white students and non-white students. While reviewing the Brief COPE instrument, the majority of students (74%) found it to be culturally relevant. Interestingly, respondent comments reflected both positive and negative aspects of the instrument in terms of cultural relevance. Overall, the results showed that the Brief COPE was found to be culturally relevant; however, students did recommend modifying the instrument to make it more responsive to culture. This study demonstrated that culture needs to be further integrated into current assessment instruments to provide a more culturally responsive assessment of individual coping strategies. Ultimately, more tailored instruments will enable health providers to better address meeting the mental health needs of their patients including adolescents.

Introduction

There is currently a deficit in the scientific research focused on culture and coping. While there has been increased attention reported in the literature on the influence of culture on coping strategies, most studies have focused on adults, with minimal studies focusing on college students. Culture is a broad construct that can be defined in varied ways, depending on the user or specific purpose. According to the U.S. Centers for Disease Control and Prevention (CDC), "culture can be defined by group membership, such as racial, ethnic, linguistic, or geographical groups, or as a collection of beliefs, values, customs, ways of thinking, communicating, and behaving specific to a group." In this study, the term cultural group will be thought of as "racial, ethnic…or geographical groups" that may differ in terms of their "beliefs, values, ways of thinking, communicating, and behaving" towards stress (18). As mentioned by Gopalkrishnan, "cultural diversity across the world has significant impacts on the many aspects of mental health, ranging from the ways in which health and illness are perceived, health seeking behavior, attitudes of the consumer as well as the practitioners and mental health systems" (7). In 2001, the United States Surgeon General published a report documenting the need to look at mental health through a cultural lens. Culture helps practitioners understand the variations in symptoms between different racial and ethnic groups. Furthermore, the report states how culture influences various aspects of how a person manages their mental health. It influences "whether people even seek help in the first place, what types of help they seek, what types of coping styles and social supports they have, how much stigma they attach to mental illness, [and even] the meanings people impart to their illness" (13). Since culture affects mental health in so many ways, it is pertinent that mental health professionals understand the patient's cultural background. There are multiple methods of coping that have been described in the literature and in clinical practice, such as problem-solving, escape, rumination, avoidance, delegation, social isolation, and support- seeking. Related to the work on coping is corresponding literature describing resiliency, risk, and adversity. Protective factors that have helped teens deal with their stressors include:

> strong self- discipline traits, prosocial behaviors, the ability to maintain a consistent structure, routine and healthy habits of exercise, sleep and nutrition, positive parenting, good coping skills, ability to self-advocate and ask for help from teachers/family, strong social connectivity, involvement in organized activities/sports, and creative outlets (16).

Little studies currently address the cultural influence on the mental health, including coping strategies, among high school students.

In their comprehensive review of the peer-

reviewed literature, LaRue and Herrman identified and categorized the primary teen stressors as:

1. School stressors (tests, homework, conflicts with teachers)

2. Family and home life stressors (worrying about the family, doing chores, conflicts around family responsibilities with siblings)

3. Social disadvantage stressors (poor housing, violence in the neighborhood, drug use)

4. Other stressors (separation from parents, being hospitalized, and transitional stress with relocation) (12)

Stress is considered a stimulus generating psychosocial and physiologic demands that require some individual action (6). Adults frequently under-estimate stress levels among teens and adolescents.

However, stressors experienced by teens are valid (12). Key factors relevant to teen stress include "cognitive differences, pubertal changes, physiological development, immature coping mechanisms, slower recovery from stressful events, and lack of experience in dealing with stress that may intensify the stressful events experienced by adolescents" (8). Stress has a number of negative consequences on teenagers. In a survey conducted by the American Psychological Association that explored the relationship between stress and health behaviors, "when people are living with high stress, it appears that they are less likely to sleep well, exercise and eat healthy foods" (1). Overall teens reported that they get less sleep than the recommendation by entities like the National Sleep Foundation. About 1 in 5 teens (approximately 18 percent) stated that insufficient sleep caused more stress in their lives and 36 percent of teens reported feeling tired due to stress over the past month. The same survey identified that 1 in 5 teens (about 20 percent) reported exercising less than once a week or not at all. Furthermore, 23 percent of teens reported skipping a meal in the past month due to stress-related reasons (1).

At the same time, there has been a significant increase in mental health issues and concerns among teens which warrants appropriate intervention and treatment. For example, the COVID-19 pandemic has impacted teen mental health in a variety of ways. According to the 2021 Adolescent Behaviors and Experiences Survey, an online survey given to U.S. public- and private-school students in grades 9–12 that assesses high school students' mental health, 37.1% of surveyed students experienced poor mental health during the pandemic. Additionally, 44.2% experienced persistent feelings of sadness or hopelessness, 19.9% had seriously considered attempting suicide, and 9.0% had attempted suicide during the 12 months before the survey (8). Strikingly, "half of all lifetime cases [of behavioral and psychological syndromes] start by age 14 and three fourths by age 24," presenting a necessity to bring attention towards teenage mental health (10). In a recent study issued by the Kaiser Family Foundation (KFF), numerous factors have potentially contributed to the decline in mental health outcomes among adolescents during the pandemic. Factors such as school closures, social distancing, and stay-at- home orders may result in adolescent isolation and loneliness. Moreover, as stated in the KFF brief, "adolescents, young children, LGBTQ youth, and children of color may be particularly vulnerable to negative mental health consequences of the pandemic" (14). These recognized sub-groups are all considered cultural groups in some respect and reinforce the need to identify unique stressors that members of these groups may experience, and to tailor responses accordingly.

Additionally, the lack of a full cultural understanding affects how mental health professionals may help teens who are representative of different cultural groups. Moreover, the effects of certain uniform therapies that lack cultural tailoring may miss the mark in producing positive outcomes. One such therapy commonly used by psychological professionals to assess coping strategies is the Coping Orientation to Problems Experienced (COPE) inventory. The Brief COPE is a shorter version of this inventory and will be used to assess coping strategies across cultural groups and the cultural relevance of common therapies used in mental health assessments. The goal of this mixed-methods research study is to determine whether there are cultural differences in coping strategies among high school students, the cultural relevance of the Brief COPE instrument, and how the Brief COPE instrument can be modified to become more culturally relevant. Based on previous research on how culture influences how a person manages their mental health, if high schoolers were presented with stress, there would be a difference in the coping strategies used by high schoolers representing different cultural groups. Additionally, respondents representing different cultural groups would state that the Brief COPE instrument is not culturally relevant and would provide recommendations for strengthening its cultural aspects.

Methods

Materials

Qualtrics, a survey software platform, was used to create the anonymous survey including the Brief COPE questions, demographic identification questions, and reflection questions. Responses were not tracked

individually, and all data responses were aggregated using Qualtrics. Data was collected and stored in Qualtrics, and the data analysis was conducted using Statistical Package for the Social Sciences (SPSS), a statistical software platform. There are many different assessment tools currently used by psychological professionals to assess coping strategies. One of the most used is the Coping Orientation to Problems Experienced (COPE) inventory. The COPE is a multidimensional instrument used "to assess the different ways in which people respond to stress" (4). The instrument presents 60 different statements that illustrate how someone might respond to a difficult or stressful event. The Brief COPE was used in this study. As mentioned in Carver's reasoning for developing the Brief COPE, "these studies typically…entail the use of many time-consuming measures," which presents a "need to minimize time demands on participants" (3). The Brief COPE was used to make the study more user-friendly due to its shorter length for completion, 28 items instead of 60, especially since the participants were high school students. For example, the 28 items include statements like "I've been getting help and advice from other people" and "I've been saying to myself 'this isn't real'" (3). Then the individual ranks how often they have felt or done each coping strategy:

1. I haven't been doing this at all
2. I have been doing this a little bit
3. I have been doing this a medium amount
4. I've been doing this a lot

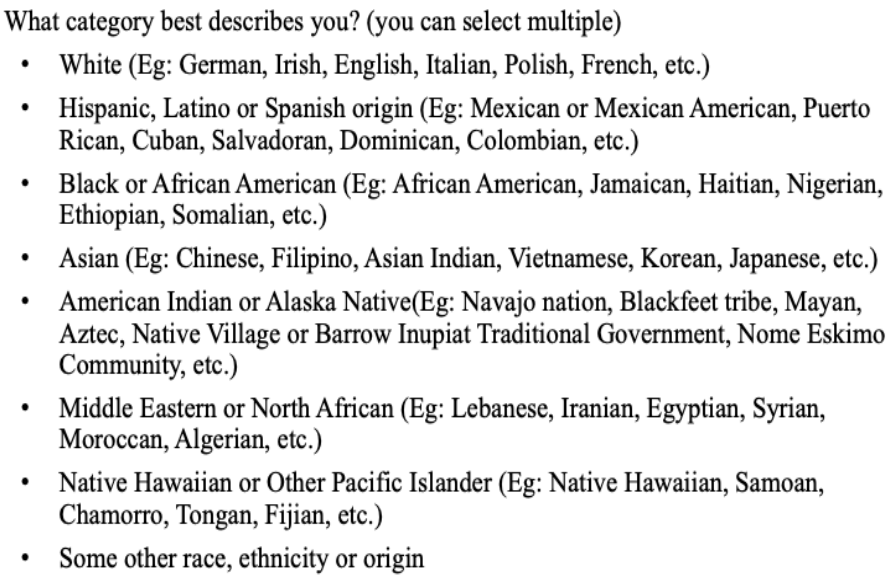
Additionally, the Brief COPE instrument was selected because it is publicly available, can be scored by non-clinical professionals, captures different types of coping, and is useful in multiple contexts/situations.

Participants

A school-wide email sent by the high school administration on behalf of the author was used to recruit interested high school students to participate in the research project. The opportunity to participate in the research study was open to high school students ages 13 to 18 across gender, race, ethnicity, and any other cultural identification group. The email was distributed to all students in the high school to obtain a more random sample although it may be considered more convenient sampling since all students attended the same school as the author. The study took place at a public high school in St. Louis, Missouri. There are a total number of 1,315 students at the high school. The racial/ethnic composition of the school district is "53.95% White, 17.57% Asian, 14.67% Black, 8.59% Multiracial, 4.98% Hispanic, and 0.21% American Indian or Alaska Native" (11).

Procedure

The informed consent form was sent out to the whole student body via school-wide email from the administration. Participants could then print and sign the informed consent forms, and gain parental signatures (if applicable), and return them. Interested participants under 18 years old were required to submit both a signature of parental consent and minor assent from the participants.


What category best describes you? (you can select multiple)

- White (Eg: German, Irish, English, Italian, Polish, French, etc.)
- Hispanic, Latino or Spanish origin (Eg: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.)
- Black or African American (Eg: African American, Jamaican, Haitian, Nigerian, Ethiopian, Somalian, etc.)
- Asian (Eg: Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc.)
- American Indian or Alaska Native(Eg: Navajo nation, Blackfeet tribe, Mayan, Aztec, Native Village or Barrow Inupiat Traditional Government, Nome Eskimo Community, etc.)
- Middle Eastern or North African (Eg: Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc.)
- Native Hawaiian or Other Pacific Islander (Eg: Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, etc.)
- Some other race, ethnicity or origin

Figure 1. ***Student Racial/Ethnic/Cultural Demographic Question*** *(15).*

		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
1	I've been turning to work or other activities to take my mind off things.	1	2	3	4
2	I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
3	I've been saying to myself "this isn't real".	1	2	3	4
4	I've been using alcohol or other drugs to make myself feel better	1	2	3	4
5	I've been getting emotional support from others.	1	2	3	4
6	I've been giving up trying to deal with it.	1	2	3	4
7	I've been taking action to try to make the situation better.	1	2	3	4
8	I've been refusing to believe that it has happened.	1	2	3	4
9	I've been saying things to let my unpleasant feelings escape.	1	2	3	4
10	I've been getting help and advice from other people.	1	2	3	4
11	I've been using alcohol or other drugs to help me get through it.	1	2	3	4
12	I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4
13	I've been criticizing myself.	1	2	3	4
14	I've been trying to come up with a strategy about what to do.	1	2	3	4
15	I've been getting comfort and understanding from someone.	1	2	3	4
16	I've been giving up the attempt to cope.	1	2	3	4

Figure 2. ***The Brief COPE instrument (3).***

		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
17	I've been looking for something good in what is happening.	1	2	3	4
18	I've been making jokes about it.	1	2	3	4
19	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20	I've been accepting the reality of the fact that it has happened.	1	2	3	4
21	I've been expressing my negative feelings.	1	2	3	4
22	I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
23	I've been trying to get advice or help from other people about what	1	2	3	4
24	I've been learning to live with it.	1	2	3	4
25	I've been thinking hard about what steps to take.	1	2	3	4
26	I've been blaming myself for things that happened	1	2	3	4
27	I've been praying or meditating	1	2	3	4
28	I've been making fun of the situation.	1	2	3	4

Figure 3. ***The Brief COPE instrument continued (3).***

Self-Distraction – Items 1 & 19
Active Coping – Items 2 & 7
Denial – Items 3 & 8
Substance Abuse – Items 4 & 11
Use of Emotional Support – Items 5 & 15
Use of Instrumental Support – Items 10 & 23
Behavioral Disengagement – Items 6 & 16
Venting – Items 9 & 21
Positive Reframing – Items 12 & 17
Planning – Items 14 & 25
Humor – Items 18 & 28
Acceptance – Items 20 & 24
Religion – Items 22 & 27
Self-Blame – Items 13 & 26

Figure 4. ***Scoring Key for the Brief COPE instrument (3).***

Participants who were already 18 years old did not need a parental signature, only their physical signature showing informed consent prior to participation. Once the informed consent form was received, an email was sent directly to the student including a direct link to the Qualtrics form. The form consisted of a demographic cultural identification question, the 28 questions from the Brief COPE instrument, and several reflection questions related to the cultural relevance of the assessment instrument. It took an estimated 10 to 15 minutes for students to complete the survey.

A sample of high school students first identified their racial and ethnic demographics using a more comprehensive system than already exists. Currently, the U.S. Office of Management and Budget (OMB) uses the minimum requirement of five categories: "White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander" (2). New innovative survey methods have begun to eliminate the words "race or ethnicity" when asking questions. The question display in Figure 1 was used to include more cultural data for accurate self-identification of respondents.

The students then completed every question of the Brief COPE instrument as listed in *Figure 2* and *Figure 3*.

Lastly, they were asked to answer four reflection questions to learn more about the coping strategies of the participants, the cultural relevance of the Brief COPE, and any recommended changes to improve the Brief COPE instrument:

- "How do you typically manage stress in your life (your coping strategies)?"
- "On a scale of 0-10 how well were your coping strategies represented in the Brief COPE (28 question survey you just filled out)?"
- "Do you feel aspects of your culture were represented in the questions on the Brief COPE? Yes or No; Please explain."
- "What changes would you recommend to improve the Brief COPE?"

	%	Count
White (Eg: German, Irish, English, Italian, Polish, French, etc)	54.72%	29
Hispanic, Latino or Spanish origin (Eg: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc)	7.55%	4
Black or African American (Eg: African American, Jamaican, Haitian, Nigerian, Ethiopian, Somalian, etc)	3.77%	2
Asian (Eg: Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc)	26.42%	14
American Indian or Alaska Native(Eg: Navajo nation, Blackfeet tribe, Mayan, Aztec, Native Village or Barrow Inupiat Traditional Government, Nome Eskimo Community, etc)	0.00%	0
Middle Eastern or North African (Eg: Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc)	5.66%	3
Native Hawaiian or Other Pacific Islander (Eg: Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, etc)	0.00%	0
Some other race, ethnicity or origin	1.89%	1
Total	100%	53

Table 1. ***Cultural Identification.***

Culture Identity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	23	51.1	51.1	51.1
	Non-White	22	48.9	48.9	100.0
	Total	45	100.0	100.0	

Table 1. ***Cultural Identity.***

The student's answers to the open-ended reflection questions were used as qualitative examples of how the Brief COPE was culturally relevant, lacking in cultural relevance, and future changes to be made to the instrument.

The demographics of the sample were analyzed quantitatively as well as the number of students who responded yes or no to the question, "Do you feel aspects of your culture were represented in the questions on the Brief COPE?" The number of students who responded yes or no from each cultural group was also compared. Additionally, the numerical ratings given by the respondents in response to the question, "On a scale of 0-10 how well were your coping strategies represented in the Brief COPE?", were analyzed quantitatively.

According to Carver, scores are presented for three overarching coping styles – problem- focused, emotion-focused, and avoidant coping styles (3). Specific questions correspond to each of these coping styles, as outlined in Figure 4. The total score indicates the degree to which the respondent has been engaging in that coping style. During interpretation it is most helpful to look at the pattern of responding across the three subscales. Consistently low scores on all subscales may indicate either A) the respondent does not feel they have many stressors to cope with B) the lack of reflective capacity or resistance to disclose personal information (for example, the substance abuse question) C) the respondent does not have many coping skills.

There are three overarching coping styles represented in the Brief COPE. Problem- Focused coping (Items 2, 7, 10, 12, 14, 17, 23, 25 [denoted in Figure 4]) is characterized by the facets of active coping, use of informational support, planning, and positive reframing. A high score indicates coping strategies that are aimed at changing the stressful situation. High scores are indicative of psychological strength, grit, a practical approach to problem solving, and is predictive of positive outcomes. Emotion-Focused coping (Items 5, 9, 13, 15, 18, 20, 21, 22, 24, 26, 27, 28 [denoted in *Figure 4*]) is characterized by the facets of venting, use of emotional support, humor, acceptance, self-blame, and religion. A high score indicates coping strategies that are aiming to regulate emotions associated with the stressful situation. High or low scores are not uniformly associated with psychological health or ill health but can be used to inform a wider formulation of the respondent's coping styles. Avoidant coping (Items 1, 3, 4, 6, 8, 11, 16, 19 [denoted in *Figure 4*]) are characterized by the facets of self-distraction, denial, substance use, and behavioral disengagement. A high score indicates physical or cognitive efforts to disengage from the stressor. Low scores are typically indicative of adaptive coping.

Results

Table 1 shows the cultural demographic makeup of the student participant sample. The majority of the students who participated were White (55%) and Asian (26%), followed by Hispanic/Latino/Spanish origin (8%), Middle Eastern (6%), and Black or African American (4%).

Table 2 shows the two cultural group categories used for data analysis. For purposes of comparative data analysis, the independent cultural identification variable was collapsed into two categories (White and Non-White) due to a small number of responses for certain cultural groups. Since students who identified with two or more of the cultural groups were required to select all groups they identified with in the previous question, rather than double counting, any multicultural, White and non-white, identifying students were grouped into the non-white category for data analysis. Hence the discrepancy between N=53 in the previous table, and the actual number of participants in the sample for data analysis (N=45).

In examining the scored responses for the Brief COPE questions, there was a wide variation among respondents in terms of specific coping styles and how students responded to specific questions. There were no patterns of responses for the Brief COPE questions within the sample except for the substance abuse sub-scale questions. The consistently negatively answered question could be explained by the age of the respondents in the study. Since all were ages 13 to 18 years old, they were not of legal age to consume alcohol or drugs.

An independent samples t-test was conducted to determine any significant differences between the white and non-white cultural groups across the three coping styles. There was a significant difference in avoidant coping between the white cultural group (M=11.91, SD=1.73) and non-white cultural group (M=15.27, 4.06); $p<0.001$. There was a slight significant difference in emotion-focused

coping between the white cultural group (M=25.52, SD=4.59) and non-white cultural group (M=29.05, SD=6.59); p=0.04. There was no significant difference in problem-focused coping between the white cultural group (M=20.70, SD=4.49) and non-white cultural group (M=18.73, SD=5.03); p=0.173.

To determine if the Brief COPE instrument captured typical coping mechanisms for high school students, the following question was asked, "On a scale of 0-10 how well were your coping strategies represented in the Brief COPE?" The majority of student participants, 80%, across all cultural groups gave the rating of a 5 to 8 for this question. There were 16% of students that rated it either a 9 or 10, and there were 4% of students that rated it either a 2 or 3.

There were shared responses to the open-ended question, "How do you typically manage stress in your life (your coping strategies)?" For example, many students overlapped in how they managed stress especially in these responses which were the most commonly stated:

> exercise/work out (or they identified playing a sport), spend time with family, hang out with friends, sleep, listen to music, and take a break.

To determine the cultural relevance of the Brief COPE instrument, the following question was asked, "Do you feel aspects of your culture were represented in the questions on the Brief COPE?" The majority of student participants, 74%, responded yes to this question in agreement. There were 21% of students that responded no to this question, and 5% that mentioned a response other than yes or no ("a bit"; "somewhat"). There was no statistically significant difference between cultural groups for this question. Among the students that agreed that the Brief COPE reflected their culture, many comments stated it was because religion, prayer, or spiritual help were included in the questions. Among the students who did not agree with the Brief COPE reflecting their culture, the following are some selected comments that were mentioned:

> "Nothing about the gym or sports culture"
>
> "No questions about world views or cultural values"
>
> "I do not see culture and stress management going hand in hand"
>
> "No I feel that no matter your culture, people are going to cope in different ways"

The final question in the survey was included to determine possible ways to improve the instrument, "What changes would you recommend to improve the Brief COPE?" Here are some selected responses:

> "Include questions revolving around exercise"
>
> "Ask questions about food"
>
> "Ask questions about stress tolerance"
>
> "Ask questions about cultural values"
>
> "Add questions about technology/screen time with coping"
>
> "Ask how your culture often deals with stress in general"
>
> "I felt some of the statements were repetitive"

Discussion

The data partially supported that culture influences how a person manages their own mental health and what types of coping strategies they use. There were some differences in coping strategies among high school students, but no clear patterns within specific cultural groups (White, Hispanic/Latino/Spanish, Black/African American, Asian, Middle Eastern/North African). However, when the data was analyzed comparing white and non-white groups, there was a statistically significant difference in both emotion-focused and avoidant coping styles. This difference could be related to contrasting values and practices of cultural groups. The majority of students stated that the Brief COPE instrument was culturally relevant regardless of their cultural identification. Many respondents provided recommendations for strengthening the Brief COPE instrument, even if they thought the instrument was culturally relevant.

The statistically significant difference in avoidant coping demonstrates that the non-white cultural group students reported significantly more avoidant coping strategy usage when faced with a stressful event than the white cultural group students. They may have reported higher usage of facets such as self-distraction and denial. There needs to be further investigation into the cultural values of each cultural group, specifically, but there may be external pressures or internal beliefs that cause a non-white high school student to choose the avoidant methods more than adaptive coping. An external pressure could be their parents telling them to behave a certain way, or possibly an internalized belief based on growing up in an environment watching their parents behave that way, thus setting an example for them now as high school students. Since "a high score indicates physical or cognitive efforts to

disengage from the stressor," mental health professionals such as psychologists and licensed mental health therapists can use this data to tailor a therapy plan that works around how the student might typically cope (3). The white cultural group's significantly lower score on the avoidant coping items indicates they are more likely to use adaptive coping, which is the use of positive reframing and active methods to manage their stress. This also may be caused by external factors, such as parental pressure, or internal beliefs, like those internalized through watching parents act as examples at home, that these adaptive methods should be used.

The slightly significant difference in emotion-focused coping demonstrates that the non- white cultural group students reported a slightly more, but still significant, usage of emotion- focused coping strategies when faced with a stressful event than the white cultural group students. They may have reported higher usage of facets such as venting, humor, and self-blame. Like avoidant coping, there needs to be further investigation into the cultural values of each cultural group, specifically, but there also might be external pressures or internal beliefs that cause a high school student to choose the emotion-focused methods. While "high or low scores are not uniformly associated with psychological health or ill health," they can be used to inform mental health professionals of "a wider formulation of the respondent's coping styles" and that the individual is more or less likely to choose methods to "regulate emotions associated with the stressful situation" (3). For this same reason, the white cultural group's slightly lower but significant score on the emotion-focused coping items can be used for informative purposes when developing a therapy plan.

Since there was no significant difference in problem-focused coping between the non- white cultural group and white cultural group students, both reported use of facets such as practical problem-solving and planning. According to the similar scores in problem-focused coping, there may be a presence of cultural values that promote problem-focused coping strategies in both white and non-white cultures. There needs to be further investigation across specific cultural groups to analyze if this is the case. This shows promise in terms of high schoolers' mental health because "high scores are indicative of psychological strength" and are "predictive of positive outcomes" (3).

Interestingly, the majority of student responses believed that the Brief COPE instrument was culturally relevant. Many of the responses referred to how relevant it was to their life or other teens. This reinforces the idea that culture is shaped by the community around a person. Although there was little difference between the individual cultural groups within the study (situated in one high school), there may be a difference between multiple schools in different regions. This is because the culture of the community is different. Regardless of race and ethnicity, the participants demonstrated that there is also a shared teen culture. When answering the open- ended questions, many responses shared how the student believed the instrument to be culturally relevant since they had seen their peers use different coping strategies.

While many students believed that it was culturally relevant, they still provided ways to change the Brief COPE and strengthen the cultural relevance of the instrument. Students proposed new topics to include in the prompts, such as technology or food, and believed the instrument should ask questions about overall culture, values, and beliefs surrounding mental health. Since the COPE and Brief COPE were published in 1989 and 1997, respectively, this instrument predates the prominence of social media, texting, and FaceTime in society. Research shows the impact of social media and modern technological communication on teenage mental health. Therefore, the COPE and Brief COPE should adopt changes surrounding new technology and social media to reflect literature findings on their impact on mental health and use as a coping mechanism.

Limitations

The study was confined to the setting for the research, a singular public high school in St.Louis, Missouri. Since the study was a singular school, there may be other factors, such as geographic location and "school culture," also affecting the participants and how they cope. In future studies, it would be important to gather participants of different cultural groups across geographic locations, different areas of the United States, and socioeconomic backgrounds, to gain a more randomized sample. This will help in assuring that differences in coping strategies are due to differences in the culture of racial/ethnic/cultural groups rather than other factors.

Compiling a sample from more high schools also increases the number of possible high school student participants, which may allow for a greater sample size overall. While the participant sample is not from the most diverse school in the United States or St. Louis specifically, the district in which the chosen high school is located did have some representation from all cultural groups mentioned in the survey, except for "Native Hawaiian or Other Pacific Islander", based on their website-reported student demographics data. The reported racial/ethnic/cultural demographics on the survey, as mentioned previously, were predominantly White, with the largest minority groups being Asians, followed by Hispanic/Latino/Spanish individuals, Middle Eastern/ North African, Black/African American individuals, and a very small percentage of Some Other Race. The collected data reflected the demographics of the school (except that there were lower

numbers of Black/African American participants in the study) but did not provide sufficient data in most of the categories to compare the responses across each individual cultural category.

Another limitation was the small sample size, which did not allow for a large variety of answers, which could have been obtained with a larger group. To possibly increase sample size in future studies, the survey could extend beyond the typical high school age to all adolescents, ages 10-19. Additionally, the quick turnaround time needed to complete the whole study, from consent to survey completion, prevented a larger sample size. Since an Institutional Review Board (IRB) required physical written consent from the parent and assent from the student, the first stage of the study process was time-consuming for the participants. The need for physical or manual signature decreased the sample size (the number of high school students willing and able to participate). In the modern age, it is very common that informed consent can be obtained electronically. However, in accordance with the IRB restrictions, electronic consent or an opt-out process was not permitted.

In conclusion, this study supports the idea that culture affects coping and mental health. Mental health concerns among high school students continue to rise, however, not all students are the same. Culture affects how students perceive certain situations as stressful and what modifications need to be made to current treatments to align with students' cultural backgrounds.

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Sophia Saleeby is a third-year biology and Spanish studies double major at Villanova University. Inspired by her experiences with multiculturalism, she wanted to further investigate how culture affects health. She noticed differences in the ways her peers managed stress, so she decided to explore these differences from a cultural perspective for her Project Lead the Way Biomedical Innovations senior research project. After graduation, Sophia hopes to attend medical school and integrate medicine with cultural competency and other social determinants of health in her practice.

Mentor
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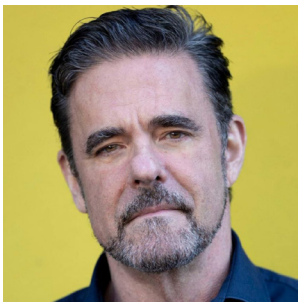
With 11 years of experience in education, Dr. Allen Weltig is a passionate Biomedical Science and Earth Science teacher at Ladue Horton Watkins High School. After earning a Bachelor of Science and Bachelor of Arts in Biology from Truman State University, he went on to earn a Doctor of Veterinary Medicine from the University of Missouri and a Master of Arts in Teaching from Fontbonne University. Dr. Weltig's work focuses on inspiring students to pursue their own research, fostering their curiosity, and helping them develop strong critical thinking skills. He is proud to see Ms Saleeby's continued research, which began during high school, come to fruition in this publication.



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Geoffrey M. Reed, PhD is a professor of Medical Psychology, Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons and Director of the Columbia – WHO Center for Global Mental Health. He is also a consultant to the Department of Mental Health and Substance Use, World Health Organization (WHO). Dr. Reed led the development of the classification of mental, behavioural, and neurodevelopmental disorders for the Eleventh Revision of WHO's International Classification of Diseases (ICD-11) and was project director for the development of the Clinical Descriptions and Diagnostic Requirements for ICD-11 Mental, Behavioural and Neurodevelopmental Disorders (CDDR). He founded and directed the WHO Global Clinical Practice Network, comprising more than 19,000 mental health and primary care professionals from 163 countries.