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**Is a Photo Indeed Worth a Thousand Words? Validating the Use of Photos to Understand
Mental Health, Gender, and Coping Methods in College Students**

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Abstract

The purpose of this study is to investigate coping mechanisms among college students at a Midwestern university using photoelicitation and to examine gender differences in coping responses, validated by mental health professionals. The study involved students from a large 4-year college in the Midwestern United States, along with mental health professionals. A diverse group of student participants and mental health professionals reviewed researcher-supplied photographs, rating coping mechanisms on a 1 to 10 scale. Students also uploaded photographs reflecting their coping methods. Quantitative and qualitative analyses were conducted on both researcher-supplied and student-submitted photographs. Mental health professionals validated student responses. Responses from non-binary/third gender individuals were analyzed separately to assess gender differences in coping skills. Data analysis revealed varying coping mechanisms influenced by gender, highlighting the need for personalized support for college students in dealing with school and life stressors. In conclusion, the study highlights the diverse coping strategies among college students and emphasizes the significance of understanding and addressing the coping mechanisms of LGBTQ+ individuals, which may differ from those of the majority community.

Keywords: Coping mechanisms, college students, photoelicitation, gender differences, stress management

Introduction and Background

The COVID-19 pandemic has been the major public health issue of the 21st century. It has had a significant effect on the physical and psychological health of much of the population of the world. The psychological effects of the COVID-19 pandemic are still being felt, despite the fact that the pandemic and subsequent quarantine have been over for some period of time. Symptoms of depression and anxiety have been reported in up to 40% of the population, with increases in symptomatology being reported in members of underrepresented classes (Khubchandani, 2021, p. 248). One group that has experienced a great deal of issues with their mental health are adolescents, and especially college students. Studies of students and young adults have reported that up to 81.6% of this group has reported some sort of mental health issue secondary to the pandemic and quarantine (Kleine, 2023, p. 4).

Self-directed photos are especially helpful to investigate the experiences of people whose perspectives of a phenomenon are underrepresented and to obtain insight that may otherwise be inaccessible by surveys. Students – as co-researchers – can help campuses understand the stresses associated with their college experiences and how they are coping. Students on the same college with similar social-spatial-temporal experiences may share a campus habitus that may remain salient within a 4 - 5 year period to graduation. We posit that photos can help understand this habitus about students' lived experience.

The study which predates this current project, by Olson, et al. (2023), is a significant one that uses photo-elicitation, a research technique whereby the subjects are asked to produce a photograph that demonstrates how they are feeling and then to explain that photograph in a few words. Researchers analyzed the photographs that students submitted in response to the question to upload a photograph that represents how they were coping with the stressful changes

in college over the current semester. The researchers previewed each image and then for the photoelicitation, answered the questions about what they saw in the image, what was “really happening” in the image, and how did it relate our lives, and what does the situation concern. Researchers then, as a group, identified recurrent themes in a standardized way in order to fully analyze both the photographs and the text submitted from the students (Olson, et al., 2023, p. 413). In this study, the dependent variable was the photograph uploaded by the respondents as well as their textual description of the way that it demonstrated coping skills.

Part I: Quantitative Analysis of Coping Mechanisms Depicted in Photographs

Materials and Methods

Our current study is an expansion of that previous study by including the use of a quantitative rating scale to examine coping mechanisms and rank them from negative to neutral to positive. To validate the use of photos to understand mental health, coping methods, in college students, survey participants reviewed and interpreted 10 random images collected from the previous student photo-surveys. Respondents were asked to rate 10 representative photos of coping strategies on a scale from 1 to 10, where 0 represents poor coping skills, and 10 represents perfect coping skills. Secondly, to independently validate our interpretation of these photos, 3 mental health experts were invited to review the same images utilizing the same rating scales. We asked respondents to give basic demographic information, including age, living situations, and self-rating of ability to understand coping skills. They were each presented with the independent variable - a photograph that had been previously submitted by a student to represent the way that they coped with the COVID-19 pandemic. Respondents were not provided the text description that accompanied these photographs. For the dependent variable, respondents were asked to rate the coping mechanisms present in each photograph on a scale of 1

to 10, with 1 indicating poor coping skills, and 10 indicating perfect coping skills. This scale allowed us to quantify a measurement of how a specific photograph represented coping skills. We also collected comments from the respondents which could be qualitatively compared to each other as well as to the original texts accompanying the photographs.

As a method of validation of the responses of the respondents, we asked 3 psychiatrists to examine the same photographs and rank them using the same scale as our student-respondents. These were compared to the responses of the students to discover any correlation that existed between the interpretation of the students and the interpretation of the mental health professionals.

Results and Discussion

First, the data from the individual photographs will be presented individually. After all the photographs have been presented, an analysis of the data will be discussed.

Data: Examination of Individual Photographs

Photograph 1: Outdoor and Sports Activities



- **Student Comments:** Overall, they were positive about the benefits of being outdoors and engaging in or watching sports.
- **MHP Comments:** Considered this photograph to be a very functional coping mechanism.
- **Student Mean:** 7.1
- **MHP Mean:** 7.67
- **Observation:** Both MHPs and students rated this photograph as demonstrating positive coping mechanisms, while MHPs rated outdoor activities higher, valuing their role in coping more than students.

Photograph 2: Interaction with Pets



- **Student Comments:** Students generally felt that pets were positive coping mechanisms for comfort and emotional support.
- **MHP Comments:** Similarly, felt that pets were positive coping tools.
- **Student Mean:** 7.19
- **MHP Mean:** 8.00

- **Observation:** Both MHPs and students rated this photograph as demonstrating positive coping mechanisms, with the higher ratings from MHPs indicating a strong belief in the use of pets as coping mechanisms.

Photograph 3: Watching TV or Movies



- **Student Comments:** Students had differing views on the use of television as a coping mechanism, some seeing it as beneficial while others less so.
- **MHP Comments:** Mentioned it can relieve stress in moderation.
- **Student Mean:** 5.46
- **MHP Mean:** 6.00
- **Observation:** Results were both positive with the students slightly favoring TV or movies more than MHPs as a coping mechanism.

Photograph 4: Exercising

- **Student Comments:** Both groups were very positive about exercise's mental and physical benefits as coping mechanisms
- **MHP Comments:** Felt that exercise is usually functional as a coping mechanism
- **Student Mean:** 8.29
- **MHP Mean:** 8.67
- **Observation:** Nearly equal high ratings underline the recognized value of physical activity as a coping mechanism

Photograph 5: Staying Indoors



- **Student Comments:** The students' opinions on staying indoors as a coping mechanism were mixed; some saw it as relaxing, others as ineffective.
- **MHP Comments:** The MHPs viewed this as not functional, emphasizing isolation concerns, resulting in a lower than average rating for coping mechanisms
- **Student Mean:** 5.94
- **MHP Mean:** 4.00
- **Observation:** Neither group was very positive about the use of staying indoors as a coping mechanism, but MHPs were more negative

Photograph 6: Shopping



- **Student Comments:** Were overall negative in their ratings and the students acknowledged the temporary relief but cautioned against overuse.
- **MHP Comments:** Considered shopping to be a non-functional coping mechanism.
- **Student Mean:** 3.6
- **MHP Mean:** 3.33
- **Observation:** Both groups rated shopping low, with MHPs more critical and using shopping as a coping mechanism gave the lowest rating of the 10 coping mechanism photographs pictured.

Photograph 7: Spending Time Outdoors with Others

- **Student Comments:** Students felt this was a positive coping mechanism for stress relief and social interaction.
- **MHP Comments:** MHPs felt this was also positive in going outside, despite the weather.
- **Student Mean:** 8.1
- **MHP Mean:** 7.33
- **Observation:** Very similar results, both were positive overall.

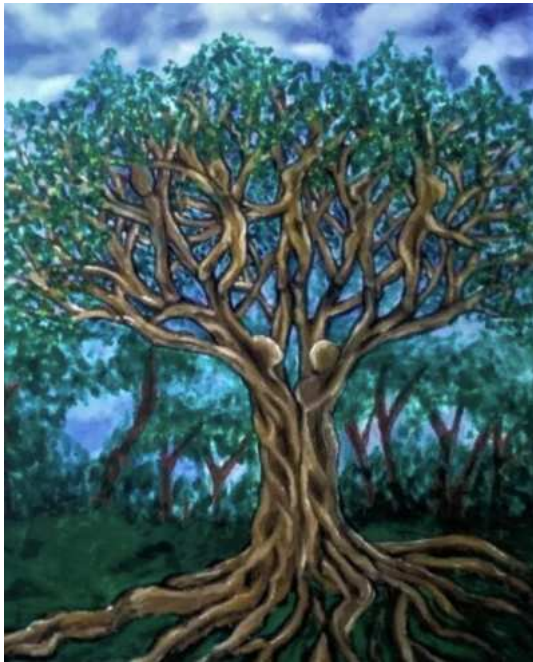
Photograph 8: Biking or Engaging in Outdoor Hobbies

- **Student Comments:** Most students felt that outdoor biking and other activities were good coping mechanisms for physical and mental benefits.
- **MHP Comments:** Seen as a good combination for coping.
- **Student Mean:** 8.09
- **MHP Mean:** 7.00
- **Observation:** Both groups had very similar ratings for biking and being outdoors.

Photograph 9: Eating

- **Student Comments:** Students had concerns over overeating as a coping mechanism as it could result in comfort eating.
- **MHP Comments:** Only a fair coping mechanism due to issues with overeating unhealthy foods.
- **Student Mean:** 5.2
- **MHP Mean:** 5.33
- **Observation:** Both groups looked at this photograph as generally neutral in its depiction of eating as a coping mechanism.

Photograph 10: Making Art



- **Student Comments:** Students were mostly positive about creative expression for coping, but not certain about what the picture represented
- **MHP Comments:** Considered somewhat functional but potentially isolative as a coping mechanism.
- **Student Mean:** 5.67
- **MHP Mean:** 5.67
- **Observation:** Students valued art more than MHPs as a coping mechanism, while MHPs looked at art as more isolative.

Statistical Analysis of the Data

A paired t-test was performed on the data (Figures 4 and 5). The purpose of a paired t-test is to look at the means of two sets of numbers and determine the difference between the means. It determines how close the differences between the two sets of numbers are from zero, in other words, how closely related are the two sets of numbers. This helps determine if the two

sets of numbers are statistically different. In this case, the p-value was 0.4264, which means that the difference between the student group and the MHP group was not significantly different. In other words, the MHP group results verified the results of the student group because of their similarity.

Part II: Qualitative Analysis of Uploaded Photographs

Materials and Methods

In this qualitative, photoelicitation portion of this study, the respondents uploaded a total of 93 photographs depicting their individual reactions or opinions about how they or the community around them was using coping skills in order to deal with the stresses of their lives.

Overall Themes of Pictures:

Each one of these photographs was examined by the researcher and was placed in a category with respect to the overall theme of the photographs. These categories were determined by examining the photographs individually and deciding what common themes were presented in each of the photographs. Themes were identified without looking at any of the demographic data, responses to other questions, or textual information that the respondents entered along with the photographs. The respondents to the survey had no role in the categorization of the photographs.

The categories, the number of photographs in each category, the percentage of photographs in each category, as well as the characterization of each category as a positive coping mechanism (POS) or a negative coping mechanism (NEG) are given as follows;

- Groups of Friends/ Family POS 8/93 8.6%
- Indoor/ Isolative NEG 19/93 20.4%
- Outdoors/ Isolative NEG 1/93 1.1%

- Religion POS 3/93 3.3%
- Entertainment/ Fun with People POS 2/93 2.2%
- Bonding with animal companion POS 15/93 16.1%
- Electronic indoor Positive POS 1/93 1.1%
- Electronic indoor Negative NEG 9/93 9.7%
- Physical isolation NEG 1/93 1.1%
- Food/ Drink Functional POS 2/93 2.2%
- Food/ Drink Dysfunctional/Unhealthy NEG 4/93 4.6%
- Enjoying the Outdoors POS 21/93 22.5%
- Exercise POS 2/93 2.2%
- Miscellaneous NEG/POS 4/93 4.5%



It can be seen that in several categories, certain pictures were considered to be more isolative or negative, while others were considered to be positive. For example, the use of electronics indoors could be considered to be positive or negative depending on what was depicted in the photograph. Similarly, there were positive and negative photographs of food and drink as well as outdoor scenarios. The categorization of each photograph was determined by paying close attention to the details of the photographs, the circumstances depicted in the photograph, as well as the author's own understanding of the lives and stressors of college students.



Overall, the photographs demonstrated a 36.9% depiction of what we considered to be negative coping mechanisms, often depicting situations of isolation, dysfunctional technology

use, overeating, and other negative reactions to stress. The photographs also demonstrated a 41% depiction of what we considered to be positive coping mechanisms, including family gathering, fun times at beaches and in the outdoors, socialization with others, religion, and exercise. 4.5% of the photographs were placed in a miscellaneous category and were too ambiguous or uncertain to be characterized as either positive or negative.

Seven of the photographs were chosen as typical examples of coping mechanisms in order to receive closer examination. Of the 93 photographs uploaded, we chose four with positive coping mechanisms and three that depicted negative coping mechanisms for further evaluation. The analysis of these photographs can be seen in Table 1 below:

Table 1: Analysis of 7 Selected Pictures

Picture	What do you see here?	What is really happening here?	How does this relate to our lives?	Why does this situation, concern, or strength exist?
	Group of friends having fun on a beach, laughing, relaxing	Enjoyment, outdoors, laughter, sun, togetherness	We all need to get out of our closed-in lives after the isolation of COVID and have fun with friends	This is a strength and is very important now because people need to become less isolative. More friendship means fewer mental health issues.
	A concert performance in front of a huge crowd of people in a large auditorium.	Entertainment, music, fun, dancing, crowds, groups of people sharing a musical experience	It is important to gather as large groups, unafraid of getting sick, enjoying public affairs, such as music and shows, and getting back to the normal lives we have always had. Music helps people lift their spirits.	This is a strength because people are now collecting publicly without being afraid of each other and sharing common, important experiences. They are able to express themselves freely.

	<p>Large amount of unhealthy food with one or two people at the table</p>	<p>People are using food as a dysfunctional means by which to satisfy their emotional needs.</p>	<p>Many people feel that food can fill empty places in their lives, eating high calorie foods instead of going outside and spending time with others.</p>	<p>This is a concern. Overeating is one of the most common and most dysfunctional ways that one can deal with stress.</p>
	<p>A large dog outside on a summer day, enjoying the sun and the beautiful weather. Looking directly at the camera</p>	<p>The picture represents an animal companion who is having a great time being outside with his owner and simply enjoying life.</p>	<p>We need to not only relate to each other, but also to have outside interests and other living things to share our lives with, especially with pets, such as dogs.</p>	<p>This is a strength. Animals are great stress-relievers and can help people adjust to isolation and changes in their lives. They are a positive sign of improvement.</p>
	<p>A cartoon of a depressed young man who appears overwhelmed with the work in front of him, expressing negative thoughts.</p>	<p>This cartoon is a projection of the isolation felt by the person who submitted it. The caption "Did I ever understand that stuff? I'm not so sure anymore," emphasizes his feeling of isolation</p>	<p>There is sadness and loneliness present in isolation and when one thinks about it too much, one can start to think about his or her own sadness and lonesomeness a great deal and become depressed</p>	<p>This is a concern. Isolation and feelings of being overwhelmed are common, especially in college students and require us to step outside of our own lives and reach out to others for help.</p>
	<p>A cartoon of a person's arm handcuffed to an iPhone.</p>	<p>This cartoon represents the isolation of technology and the way it can have a terribly detrimental effect on the lives of the people who use it.</p>	<p>Many people feel chained to their phones and computers and because of this are unable to leave their homes or begin to engage with other people.</p>	<p>This is a concern. Technology can be extremely isolating and is something that must be examined and limited in order that individuals relate to people in the real world, rather than in the virtual world.</p>









	<p>A beautiful fall day with the color of the trees reflected in the water.</p>	<p>This fall day is one that demonstrates the bright colors of the season and the enjoyment of fresh air and being outdoors.</p>	<p>This is a positive look at the future. Fall is the time that seasons change and this picture represents a perfect fall day with hope for the future.</p>	<p>This is a strength. It does not only represent being outside and not being isolated, it is a picture of one of the most beautiful and magical times of the year.</p>
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Table 2 below describes the basic themes present in each one of these photographs:

Table 2: General Themes of 7 Selected Pictures

Picture	Themes
	<p>Spending time outdoors with friends</p>
	<p>Groups of strangers gathering together to celebrate and listen to music</p>
	<p>Overeating and dealing with stress in a dysfunctional manner</p>

	<p>Animals are not only our best friends, but also great stress relievers</p>
	<p>Isolation can combine with frustration and create depression.</p>
	<p>Technology can harm us if we are too connected to it</p>
	<p>The beauty of the outdoors</p>

Just as important than these general themes are the overall themes of these selected photographs (Table 3). In order to do so, they must be thought of in a qualitative sense as visual narratives of the thought processes of the individuals who submitted them. They are considered to be reflections of the ways that these respondents were coping with the stresses of life at the time that they submitted these photographs. It is essential to examine these photographs and get a feel for exactly what these pictures mean to the individual researcher as well as possibly to the individuals who took the pictures and who will examine them in the future. In order to do so, each of these selected photographs was examined closely and an overall, metaphorical theme was extracted from the pictures. These themes were based on the appearances and content of the

photograph as well as on the personal experience of the researcher, a peer of the students who took the photographs. As can be seen the themes range from ones that show very positive coping mechanisms to ones that demonstrate more negative coping mechanisms. The analysis also examined the potential causes for and reasons behind the selection of these photographs by the students who submitted them. In doing this qualitative analysis, it can be seen that there is a wide diversity in the means by which this selected group of students was dealing with the stresses of their lives, ranging from functionally spending time with friends, being outdoors, playing with animals, to more dysfunctional eating, isolation, and feelings of being trapped by the demands of technology. In the end analysis, these sample photographs demonstrate the fact that people have distinctly different ways of dealing with stresses and coping with the changes in their lives and that the deeper understanding that we can have of these coping mechanisms, the better we can not only understand the emotional lives of others, but the better we can help them improve ways of dealing with their stresses.

Table 3: Extended Analysis of 7 Selected Pictures

#	Themes
	<p>This picture of students who are relaxing at a beach in casual clothing, rather than in swimsuits or beachwear demonstrates a means of coping strategies that is outside of their normal activities and likely outside of their normal method of dealing with stress. It shows a deliberate attempt to step outside of normal coping skills such as exercise or simply being with friends in a local environment. It should be remembered that even in the west part of Michigan, the beach is still quite a distance away and it takes a good deal of effort for students to get into their cars, plan, and go out to the beach. This coping strategy is a positive, functional way of dealing with the stresses of life and of the academic stresses of being a college student. The enjoyment of this method of coping can be seen in their relaxed postures, as well as the smiling expressions on their faces. They are sitting close together and enjoying each other's company in an environment that is certainly atypical for them. It is an opportunity for the students to completely step away from their normal life stressors and enter into a world of sand, water, sun and relaxation. The totality of the image demonstrates the importance that people place on not only completely leaving their areas of comfort in order to relieve stress, but also ongoing an extended distance physically and emotionally, in order to balance the stressors that they feel from their general life pressures. This is the concept of balancing work, school, and personal life and shows the importance of self-care and enjoyment in coping with the stressors of a student lifestyle.</p>
	<p>This photograph also demonstrates a functional method of dealing with stress. In this case, the students are engaged in watching a concert. This method of coping is not within the normal range of coping mechanisms, as concerts do not happen all of the time and this is certainly a special event that the students wished to attend as a form of celebration. As the concert appears to be in a large auditorium, it becomes a multi sensory experience with sound, sight, vibrations, temperature, and all of the aspects of being in a crowd coming together to help the students walk away from their stresses for a temporary feeling of time. It is a fun way for them to functionally detach from the stress of school as well as from the difficulties of reentering into a world post-COVID. The fact that they are in a large forum with thousands of people is especially important from a functional point of view because they are rejecting the isolation that they felt during the pandemic and quarantine and are allowing themselves to be fully immersed in the sights and sounds of a rock and roll concert. A musical experience with loud music and many people is as different from the everyday stressors of an academic life as can be thought possible. There is a great functionality present in sharing such an experience with other people - all of whom are escaping from</p>



their own stresses and enjoying as a group the freedom of music, dance, and individual expression. It is the collectiveness of this experience that truly emphasizes the magic of music and the importance and functionality of this method of coping.




This photograph demonstrates a definitely more negative form of coping. Eating is generally looked at as a negative coping mechanism in response to stress that cannot be expressed in any other way. In other words, if an individual is not able to express his or her stress in a functional way in order to reduce the stress and feel good about himself or herself, that person may turn to dysfunctional ways of dealing with stress, such as sleeping too much, not exercising, or as in this case, overeating unhealthy food. It is important to realize that this is not simply the expression of a desire to eat to get healthy, the foods depicted are atypical and not those that people normally eat regularly. It is like the depiction of an individual's intent to fill themselves up with food or with emotion for the purpose of suppressing how they really feel. This is the classic definition of "emotional eating." The use of such unhealthy varieties of food also emphasizes the need to experience a relief of tension through the expression of experiences through other senses - in this case, the sense of taste and possibly smell. Although there may be a social aspect to this coping mechanism, as there appear to be multiple people at the table, that social aspect is overridden by the apparent need to satisfy a base need - filling yourself up physically when one is not able to heal up oneself emotionally.



One of the most functional coping mechanisms seems to be the inclusion of animals in our lives. As opposed to the other photographs in this series, this is a photograph of a normal part of a person's life. Animals, such as this dog, can be our constant companions during good times as well as difficult times and can help us deal with stress. This photograph demonstrates not only a dog who appears to be happy or "smiling," but also being outside on what looks like a glorious fall day, just having fun with the person's "best friend," the dog. Dogs provide many positive coping mechanisms. On a long term basis, they are constant companions, with long lifespans that can connect us to some of the best and happiest memories of our lives. On a short term basis, they are warm, loving, and non-judgmental companions who are only capable of providing enjoyment, love, and happiness. They are great temporary coping mechanisms when things are bad for a short period of time because they remind us that no matter how bad things are, there is always someone you can turn to who is there only to give you back love, a fundamental psychological need that people have. They are also long-term coping assistants because we know that they will "always" be there for us, no matter what else happens in the world and give us that basic sense of security that we all want from our parents, our spouses, and

	<p>certainly from our pets. They bring comfort, happiness, kindness, and most of all acceptance in a world that oftentimes gives more rejection and stress. Dogs are possibly one of the best coping mechanisms of all.</p> <p>s</p>
	<p>This picture may be a cartoon, but the image of the young man in the cartoon, as well as the caption demonstrate a negative method of coping with the difficult aspects of life as well as the emptiness of the way that some people think about life and about the futility of learning how to deal with life. The most negative aspect of this cartoon and its caption is the fact that, unlike some of the other photographs in this series, it does not represent something out of the ordinary, rather it depicts an ordinary day in the life of the individual pictured in the cartoon and potentially in the person who chose this image to submit. It is more than just a photograph of someone demonstrating thought processes and introspection, it is an image of a young man who simply cannot make sense of the mathematical equations in front of him, and by extension about other aspects of his life. There is no one else in the image with him, and nothing else in the room but some empty chairs and a few papers posted on the back wall. Even though the day outside looks bright and sunny, the young man's thoughts are quite the opposite. The secondary theme in this picture is also regret. This is also something that, unfortunately, is not an unusual thing in the lives of some people. Again, this image emphasizes the importance of looking at a problem from all different points of view and not solely trying to cope with one's problems by regret or giving up. This sense of isolation and frustration can cycle into a whirlpool of depression, sadness, and more isolation, leaving the individual in a world of hurt and ineffective coping mechanisms.</p>
	<p>This cartoon also symbolizes a poor method of coping and one that, again, is not an uncommon or infrequent form of coping, but rather one that individuals are faced with on not just a daily basis, but on a minute-by-minute basis. That is the coping mechanism of turning to technology in order to cope with stresses of the real world. There is no doubt that technology has changed our lives for the better in many different ways, but as this cartoon demonstrates, technology has also harmed us and chained us to the virtual world when we must truly leave it in order to learn how to cope with reality and the stressors of our actual lives. One interesting aspect of this cartoon is the fact that the bracket on the individual's arm that is chained to the phone is quite thick, implying that he or she is completely attached to the phone through a method that cannot be broken or challenged. This shows that using the coping mechanisms of turning to technology to escape, or perhaps even to interact with others in a "virtual" world, is more of a prison than a functional coping skill. It may allow the individual a little time to</p>

	<p>escape the worries of his or her own world and enter into a fantasy world of fun, but in the end, it becomes simply a poor method of coping that substitutes one set of problems for another - perhaps even more isolative than the original.</p>
	<p>This is an excellent example of a very good coping mechanism and it is also one that is not commonly encountered as most people here live either in the city or a short distance from it and it takes a great deal of effort in order to find and reach a location that has hills and colors like those depicted in this photograph. It is a positive example of a coping mechanism as it depicts a person's desire to enter into the wider, more open world, rather than into one's own inner self or isolation in an attempt to deal with the stressors of life more functionally. As stated above, going into such an environment is something that a person does not do on a regular basis and it takes a great deal of effort in order to find an outdoor spot as beautiful and as relaxing as this one and it demonstrates the need that this person has to get away and free himself or herself from the stresses of life, even if only for a short period of time, to immerse himself or herself in the beauty of nature. The beauty of nature is directly opposed to the stresses of a student's everyday life and demonstrates the importance of not forgetting that the world is about more than just the COVID pandemic, the stresses of school or looking for a job, and the pressures of everyday life. The physical exercise of getting out into the country, experiencing the fresh air and beauty of this world are calming and soothing and are things that the individual can take back to the stressful world of life and use as coping memories in order to feel better when things are going poorly.</p>

Analysis of Pictures from Respondents Identifying as “Non Binary/ Third Gender”

It is important to also look at certain subgroups that were respondents in this study. One significant subgroup are those individuals who identified themselves to be “non-binary/ third gender,” and these respondents will be discussed below. It is essential to spend time examining the members of the LGBTQ+ community who responded to this study because, as will be discussed below, the incidence of mental health issues, including depression and suicidality in members of the LGBTQ+ community is quite high. It is therefore important to examine their use of coping mechanisms to see what part coping plays in the development or recovery from

episodes of depression or other mental illnesses. In their article, Lucassen, et al. (2022) discusses the coping strategies utilized by gender minority youth when dealing with the stresses that are present in the lives of young people. They report that the prevalence of depression in this group is approximately 2.9 times that of the non-gender minority population - a concerning figure. The specific reasons for this high prevalence of mental illness in this population is not completely known, but is likely related to the degree of society and social stressors experienced on a daily basis by members of the LGBTQ+ community. Stigmatization, discrimination, and victimization are all commonplace in the community and result in an increased risk and incidence of mental illnesses such as depression. In a national survey performed by the Substance Abuse and Mental Health Service Administration of the United States government, it has been calculated that 3.9 million members of the LGBTQ+ community suffer from any mental disorder, while 1.4 million members of the LGBTQ+ community suffer from serious mental illness (SAMHSA, 2016). A full 50% of the nonbinary community has “seriously” considered suicide in the past year (Trevor, 2023). These statistics are quite distressing and call for an urgent understanding of the needs of the LGBTQ+ community, with special emphasis on the need to examine effective and functional methods of coping with stress. When looking at coping mechanisms, Lucassen reports that the connection with other people in the LGBTQ+ community was “seen as important” in order to help members cope with stress and in doing so, helped these individuals to “feel as happy, safe, and loved all the time” (Lucassen, 2022, p. 14). Interestingly, the authors also found that the internet “was frequently seen as an important way in which SGMYS could achieve a connection with other SGMYS for support purposes” (Lucassen, 2022, p. 14). This, however, was reported with a caution that the internet could be filled with


homophobic and transphobic views, as well as exclusionary actions that would be detrimental to the mental health of these young people.

Another means of positive coping was reported to be the act of “educating” others and helping them face the difficulties that were present in the lives of these young people. Religion, “being out,” and engaging in social media were also described as means through which LGBTQ+ young people felt that they were positively coping with their own stressors (Lucassen, 2022, p. 15). The authors noted that certain coping mechanisms, such as avoidance and apathy, along with ignoring the stresses in their world were also used. In many of the studies reviewed by the authors, one key was the sense of connectedness to a larger world, whether it was others in a same or similar situation or groups who shared similar values, the sense of connectedness was a positive coping factor (Lucassen, 2022, p. 18). Self-harm was mentioned, as were alcohol and drug use as negative examples of coping mechanisms (Lucassen, 2022, p. 22).

The study findings are seen in the images below, as well as in our interpretation of the images in Table 4 below. The findings in our research appear to be similar to those in the discussions in this research meta-analysis. While one cannot draw wide-ranging conclusions from a sample of only 4 individuals, in the coping mechanisms seen in the examples reported here from respondents who identified themselves as non-binary or third gender, one can see two positive and two negative examples of coping mechanisms. It is interesting to see that in one case, the photograph of Gonzo, from the Muppets, the respondent apparently chose a fictional, cartoon character who represented certain aspects of their own personality. Gonzo is a sexually amorphous character who never gives up a fight or a quest, and although they are thought of as an odd or eccentric character, is one of the most beloved members of the Muppets and a member of that group for the past fifty years. If these were the thoughts in the head of the

respondent who chose Gonzo as the photograph to upload to represent their coping mechanisms, these are extremely positive characteristics that describe coping mechanisms that are well thought out, well put together, and functional in order to deal with all of the stresses of anyone's life, whether a member of the LGBTQ+ community or not.

Table 4: Extended Analysis of Pictures from Respondents Identifying as “Non Binary/ Third Gender”

#	Themes
	<p>This photograph demonstrates a definitely more negative form of coping. Eating is generally looked at as a negative coping mechanism in response to stress that cannot be expressed in any other way. In other words, if an individual is not able to express his or her stress in a functional way in order to reduce the stress and feel good about himself or herself, that person may turn to dysfunctional ways of dealing with stress, such as sleeping too much, not exercising, or as in this case, overeating unhealthy food. It is important to realize that this is not simply the expression of a desire to eat to get healthy, the foods depicted are atypical and not those that people normally eat regularly. It is like the depiction of an individual's intent to fill themselves up with food or with emotion for the purpose of suppressing how they really feel. This is the classic definition of "emotional eating." The use of such unhealthy varieties of food also emphasizes the need to experience a relief of tension through the expression of experiences through other senses - in this case, the sense of taste and possibly smell. Although there may be a social aspect to this coping mechanism, as there appear to be multiple people at the table, that social aspect is overridden by the apparent need to satisfy a base need - filling yourself up physically when one is not able to heal up oneself emotionally.</p>



This photograph is a picture of “Gonzo,” one of the characters of the Muppets. Gonzo is a character who has many positive characteristics and is generally described as “eccentric.” He is funny, fast-moving, he takes chances and is always optimistic, no matter what the situation in which he is placed. He is a positive role model for people because no matter the circumstances, Gonzo is always happy. He is always encouraging, and most importantly, he is always resilient, even in the face of problems. Gonzo is also never specifically defined as male or female and does not seem to have a specific gender orientation. Overall, the depiction of Gonzo as a means of dealing with stressful situations demonstrates a very positive set of coping skills, because Gonzo is known to be the one character who can always overcome challenges. Gonzo is an excellent role model to examine when looking at ways to formulate and evaluate one’s ability to cope.



This photograph also demonstrates very good coping skills in several ways. First of all, it is a picture of an individual with animals. Animals are generally always good methods of developing coping skills, but in this case they are not the typical dogs or cats that are often seen in coping skills photographs. Here, the stress relieving animals are actually fish in an aquarium. These are not ordinary fish, however, they are large, very attractive fish and in the picture, one actually appears to be looking at the person, while the other fish appears to be looking straight into the camera. This eye contact also demonstrates a positivity in relation to the interaction between the person and the fish. Even without this, there is another significant point in the picture that needs to be examined. The woman in the picture has her hands made into a heart-shaped symbol, a representation of love and affection, further demonstrating the positivity of this photograph in demonstrating a functional, strong coping skill to be used during times of stress.



This photograph is a quite negative depiction of coping skills. It has several negative images placed within it. Central to the photograph are two cards, one face down and the other one on top of it face up, showing the Five of Clubs. This is a hand in the game of Blackjack, a gambling contest often seen in casinos and considered to mainly be a game of chance, more than a game of skill. Gambling as a coping mechanism is a poor one, just as over-eating and drinking alcohol are poor coping mechanisms. Gambling does not deal with one's stress in a functional way, but rather it distracts the individual from dealing with one's current situation and puts them into the fantasy world of the potential to make money out of gambling. In addition, in this photograph are what appear to be a mostly empty glass of a dark colored alcoholic beverage, another extremely negative means of coping with stress. Lastly, there is also a face down cell phone in the photograph, which is a third dysfunctional coping mechanism. Like alcohol and gambling, the excessive use of cell phones or other technologies leads only to the suppression of dealing with the stress and anxiety of life, rather than functionally interacting with others and reducing stress through more positive means of coping.

Discussion

The overall themes of the photographs range from coping mechanisms that display isolation to those that depict individuals coming together in large groups in order to celebrate the ending of isolation secondary to the stress of COVID-19 pandemic as well as other stressors. The distribution of dysfunctional or negative coping mechanisms of about 40% reflects some of the estimates of the number of people who are affected with mental health issues, such as depression and anxiety in the aftermath of the COVID-19 pandemic, along with the 60% who appear to have more functional, positive methods of coping with stress. Despite the fact that 60% of our respondents appear to be coping functionally with the stresses that they are presented with in their lives, it is essential to recognize that the 40% who are not is a very significant number. This calls into play the need for increased attention to be placed on the mental health of college students, who because of their age and stressors may not have the skills to cope with life

stressors or the access to good mental health therapy to help them develop these necessary life skills.

The next question comes as to what we can do about helping students deal with the stressors they experience as well as learn how to develop the appropriate coping skills needed to transition into adult life. The first thing that is necessary is there must be an increased recognition of the presence of mental health issues in the adolescent and college-aged population. Students at this age period are faced with many decisions that need to be made and do not always have the coping skills or maturity with which to deal with these issues. Recognition by students, educators, and parents that mental health concerns can be present is an essential first step to finding help and assistance for these students. Public education and messaging in the media can help significantly to bring the awareness of mental health issues to the minds of the public as well as to policy makers.

The second way that we can help these young people is to raise the awareness of the availability and the need for psychological counseling as a means to help students and others develop more functional coping mechanisms. As a part of this, in our next study we are expanding our investigation in order to see if and how students are able to extrapolate the need for counseling from photographs such as the ones in this study. The determination of the ability to recognize the need for counseling is an essential part of helping those in need of mental health care.

Finally, it is essential to recognize that the needs of the LGBTQ+ community as well as other underrepresented minority communities may be different from and greater than those of the majority communities. The rates of mental illness, depression, and suicidality in the LGBTQ+ community are significantly higher than those in the non-LGBTQ+ community and draw

attention to the importance of extending research into the needs of this community. Effective role models, community connections, outreach, and treatment options for the LGBTQ+ community are important in order to help a group of individuals who have suffered from marginalization for a long time.

Conclusions

In the quantitative portion of this study, the comparison between student and MHP ratings and comments for each photograph demonstrates an overall agreement on the use of several different coping mechanisms (Figure 1). Coping mechanisms that represented activities or situations that involved physical activity, being outdoors, or social interaction received high ratings from both groups, emphasizing the fact that these photographs demonstrated relatively effective coping strategies. On the other hand, photographs that demonstrated coping mechanisms that were indoors or solitary activities generally rated lower rankings by both groups as these could indicate feelings of isolation or loneliness, opposite to those coping mechanisms demonstrated in the outdoor and exercise photographs. Although these activities may be short-term correction to feelings of anxiety, they were generally not thought of as functional for long term coping.

When one examines the graphs in this study, the results are extremely interesting, especially in the examination of the double line graph (Figure 2 and Figure 3). Although there are definite variations in the actual numerical responses between the students and the MHPs, the basic lines are extremely similar, as can be seen in the graph. This similarity is present in virtually all 10 photographs. This is especially interesting because, in only 2 of the 10

photographs were the student's evaluations of the photographs higher than the evaluation of the MHPs, but the general outline of both line graphs remains remarkably consistent.

In the qualitative portion of this study, the analysis of the photographs that were uploaded by the respondents demonstrated differences in coping mechanisms used during this post-COVID-19 pandemic. The analysis shows that approximately 40% of individuals used negative or dysfunctional responses, reflecting the prevalence of mental health issues such as depression and anxiety, while 60% exhibited positive or functional coping strategies. This significant portion of individuals demonstrating potential mental health issues shows the need for more mental health treatment, particularly for college students who may lack the necessary coping skills and access to effective therapy. Recognizing mental health challenges in adolescents and college students is very important, emphasizing the importance of public education and increased awareness among students, educators, and parents to increase awareness and access to counseling. This may be especially true when considering the needs of the LGBTQ+ community. Raising awareness about the importance and availability of counseling services is important to help college students and others develop functional coping mechanisms, while continuing qualitative, photoelicitation-based research can help us identify the need for mental health care. As can also be seen from the qualitative examination of photographs submitted by those who self-identify as non-binary/ third gender, members of this community face mental health challenges as well.

The importance of this study lies in the fact that it looked at both quantitative and qualitative ratings of photographs to determine the functional degree of the depicted coping mechanisms. Having a control group of trained mental health professionals allowed the

technique to be validated against a standard evaluation. This study emphasizes that there are many different types of coping mechanisms that are available in order to deal with stress and that some are more functional than others. It is essential for healthcare workers to help individuals from all communities choose those coping mechanisms that are most functional in an attempt to help people deal with their level of stress.

Figures/Tables

Figure 1: Student/ MHP Means

	Student Mean	MHP Mean
Coping Skills	6.29	9.33
Photo 1	7.1	7.67
Photo 2	7.19	8.00
Photo 3	5.46	6.00
Photo 4	8.29	8.67
Photo 5	5.94	4.00
Photo 6	3.6	3.33
Photo 7	8.1	7.33
Photo 8	8.09	7.00
Photo 9	5.2	5.33
Photo 10	5.67	5.67

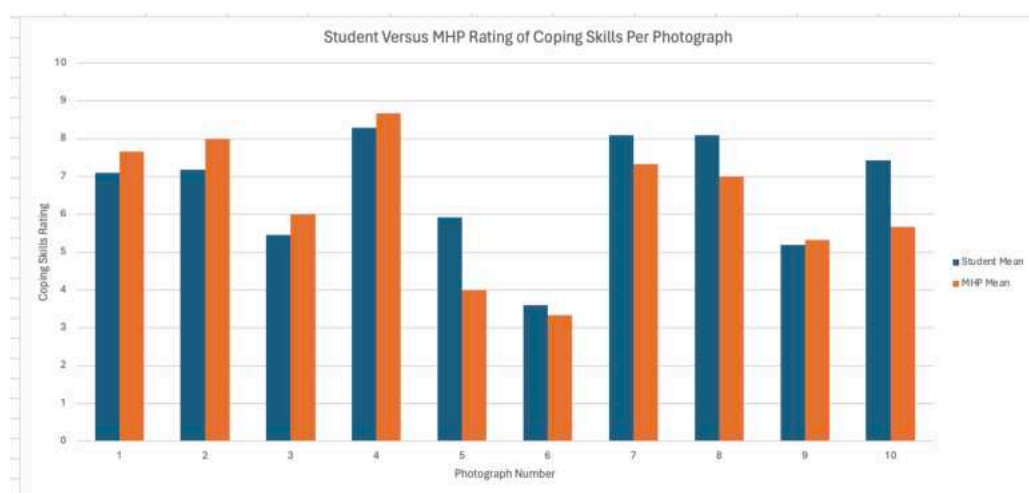


Figure 2: Bar Graph of Student/ MHP Mean

Figure 3: Line Graph of Student/ MHP Means

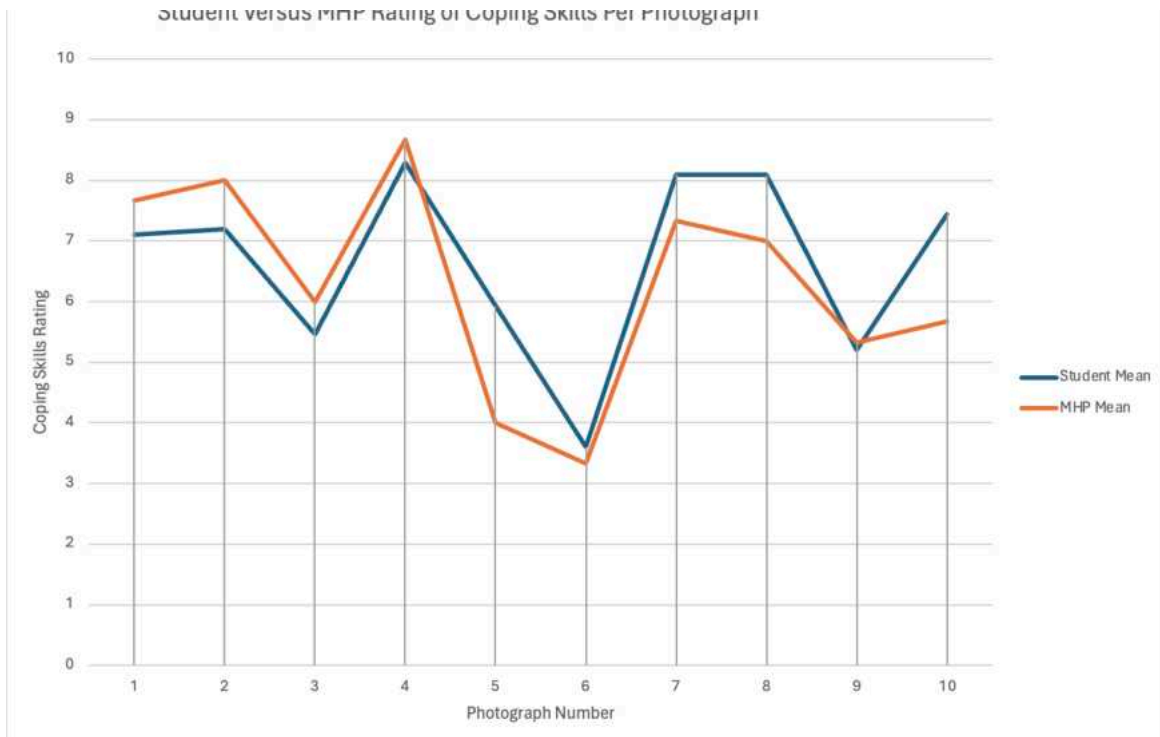
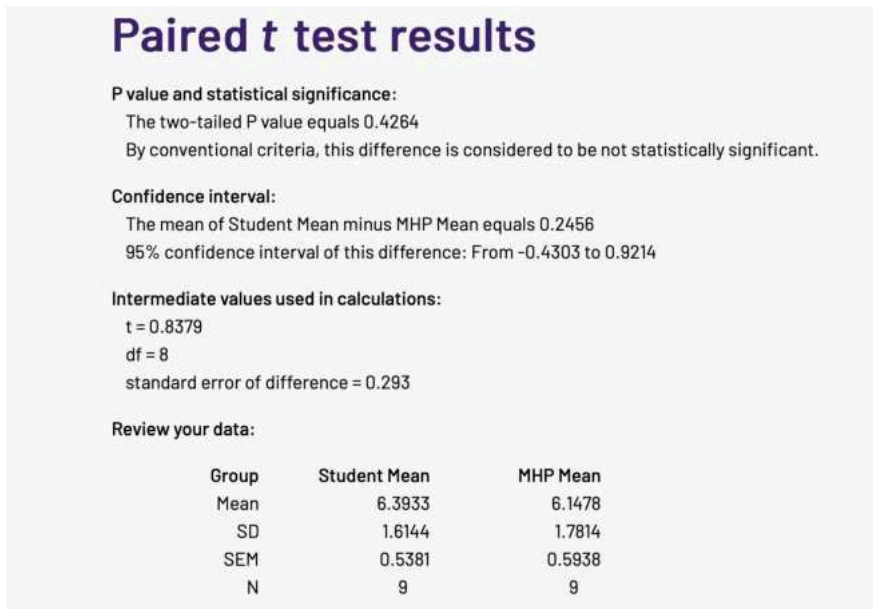


Figure 4: Statistical Analysis for t-test

Label:

	Group 1	Group 2
1	7.1	9/33
2	7.19	8
3	5.46	6
4	8.29	8.67
5	5.94	4
6	3.6	3.33
7	8.1	7.33
8	8.09	7
9	5.2	5.33
10	5.67	5.67
11		
12		
13		
14		
15		

Figure 5: Paired t-test Results



Addendum I: Student/ MHP Comments (Selection)

Photograph 1

Student Comments

- Taking time to watch something you enjoy can be very helpful
- getting out and doing something
- I think that this is a healthy way of coping because it is 1) getting outside and 2) doing something that they enjoy
- Spending time with family, distracting yourself with entertainment, outside environment
- They're spending time with others, presumably family
- 8 because they are outside but idk who the people are and that changes the rate from 8 - 10 or vice versa
- I ranked it a 7 because while it is a good coping strategy to watch a sport you enjoy, if you are really into sports you might get stressed out by the game if the team you are rooting for isn't doing too well.
- They look happy, content. easy to cope with
- I feel like this is a bad but good coping skill because sports can be competitive but it can be fun so your mind is still racing with different thoughts
- I think spending time with people and enjoying outdoor activities are some of the best ways to cope
- spending time with a significant other and watching a game is a stress reliever
- Athletics is fun. Outdoors.
- I believe everyone has different ways of handling stress, and if going to a sporting event helps them then good for them.
- time with family can be helpful and being outside is nice
- going outside is nice for releasing stress

MHP Comments

- Outdoor and sports very functional

Photograph 2

Student Comments

- Studies have shown that petting a pet or being in a pet's presence increases mood.
- animal/friend support, comfort from pet
- I use my ESA as a coping skill, I think it's more than healthy
- it depends on the person, for some people they are codependent on their pets making it relatively bad

- Having a pet as a companion can help you feel less alone and help ease the stress since you have someone there with you and you aren't alone.
- I'm not really sure how to relate a cat to coping skills.
- animals can help cope with a lot of things
- Pets are therapeutic and can be used to cope, but I feel like additional mechanisms would be more beneficial
- pets are a huge stress reliever!
- Don't like cats
- it's a cat
- pets can really help people feel better and feel loved
- I have an emotional support animal and it does a good job of helping with stress

MHP Comments

- Pets are good stress relievers

Photograph 3

Student Comments

- I think that this is a good way to get your mind off of things, but there are also better ways to cope such as exercising or getting active.
- distracting yourself with tv but not the best thing you can do
- depends on the friend and how they are doing it, it changes but it's not necessarily bad unless this is all they are doing
- Watching a show or your favorite show helps ease stress by releasing dopamine since you enjoy watching that show. If it is a show you have already seen, there will be less anxiety watching it because you already know what happens.
- I think relaxing and watching a movie or something is very beneficial when it comes to coping with something.
- this is kinda good but they are putting whatever it is off
- From personal experience, this feels like more of a distraction than coping, which does not help in coping with issues
- watching a show can take your mind off of stress
- i think watching too much tv or looking at a screen for so long can be a slippery slope into a depression sometimes
- tv is a good brain break for stress

MHP Comments

- Watching TV sometimes relieves stress in moderation

Photograph 4

Student Comments

- I think that this is a very healthy way to cope, because its getting active and increases endorphin release.
- working out to distract yourself and is a healthy way to cope
- once again it depends on how they are participating in this and if this is all that they do
- Exercising produces endorphins, which are natural mood boosters.
- I would highly suggest working out as a coping mechanism.
- for some people working out can help relax
- Staying physically active is a great coping mechanism, you become more healthy mentally and physically
- burning calories and working out relieves tons of stress and gets your mind off of it
- i think exercise is so important and great to help cope
- great way to drop your stress levels

MHP Comments

- Exercise is usually functional

Photograph 5

Student Comments

- I think that this strategy could be improved by doing an activity to take the brain off of the stress rather than just sitting there and sitting with one's thoughts.
- watching outside, can be calming but doesn't solve anything or help you in any way
- this picture can either be really good or really bad depending on if they are chilling or if they are saying they are cutting people out then are a social person
- Staying inside and relaxing helps ease stress because you are in control in your own home and you get to do nothing and watch tv or whatever you want. This eases anxiety and helps introverts as they get drained by socializing.
- I think this picture says a lot about this person's coping. It looks like they're relaxing and possibly looking outside. Plants are good tools for stress relief also.
- sitting alone in a peaceful space can help with coping
- getting sunlight and relaxing relieves stress!

MHP Comments

- Staying indoor or hiding on a nice day not functional

Photograph 6

Student Comments

- spending money and getting things you want can make you feel better but can also be hurtful
- knowing my friends this is the worst they can do when they are upset because they buy things they don't need
- I would rate this as a 5 because buying something you want can make you happy. However, you might over shop and spend more than intended just for that quick fix for happiness.
- I would say this is not the best coping skill. I tend to do this myself when I get stressed.
- Shopping instead of facing problems can become an issue and make things worse
- Retail therapy is a temporary relief, but ultimately can create larger issues (like dependency on shopping for happiness or creating money issues)
- good distraction/hobby but can also be stressful to spend money!

MHP Comments

- Shopping and spending money is not functional

Photograph 7

Student Comments

- going for a walk with family outside is very helpful
- depends on the person who's sending it
- Being outside with friends is relaxing due to the fresh air and Vitamin D from the sun.
- I think spending time with others and being outdoors are great coping tools.
- spending time with family or friends can put people in a better mood
- Spending time outdoors and with people you love is great for coping
- getting fresh air and doing something fun helps with stress

MHP Comments

- Dreary day, but outdoors is good

Photograph 8

Student Comments

- Having a hobby like biking is a great coping mechanism.
- I think this is a great coping tool. It would count as working out.
- Like working out, this helps mentally and physically
- getting fresh air and working out is a big stress reliever
- riding your bike outside is good because you are able to focus and be in a different environment
- this means nothing to me idk what it means

MPH Comments

- Exercise and outdoors good combination

Photograph 9**Student Comments**

- eating can be good to an extent but if you are over eating it can just cause more problems
- it's just food, doesn't look very good but idk
- Eating comfort foods is a great coping mechanism but stress eating can lead to unwanted weight gain or make you feel worse.
- I would say this Is really good coping skills. It is important to eat during times of stress.
- eating your pain isn't going to help
- Food can be a source of comfort, but it can also lead to potential issues (like unhealthy relationships with food and disordered eating)
- eating good food is great for stress but it wont take the stress away
- cooking is cool

MHP Comments

- Overeating unhealthy foods

Photograph 10**Student Comments**

- drawing/painting a picture is very helpful
- I would need more background for it
- Making art is another great hobby that is an effective coping mechanism. It helps express yourself and process feelings.
- Im assuming someone drew/painted this and I would say that is a great way to cope
- are they painting???? seems like a good coping skill

MHP Comments

- Somewhat function, still isolative

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