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THE RELATIONSHIP BETWEEN CULTURAL AND SOCIOECONOMIC FACTORS AND MENTAL HEALTH: A STUDY OF KENYAN COLLEGE STUDENTS

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THE RELATIONSHIP BETWEEN CULTURAL AND SOCIOECONOMIC FACTORS AND
MENTAL HEALTH: A STUDY OF KENYAN COLLEGE STUDENTS

By

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A capstone project submitted for Graduation with University Honors

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APPROVED

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ABSTRACT

The majority of research in the field of Psychology has been conducted by American researchers, in American-based institutions, with participants who have largely come from Western, educated, industrialized, rich, and democratic (WEIRD) backgrounds. This has severely limited the geographical and cultural applicability of the results of our studies. This is particularly true for mental health assessments, which are highly correlated with local cultural influences. The present study was conducted in Kenya. Using African university students as participants, we used three surveys to determine the relationship between cultural, socioeconomic factors and local mental health. We focused on three main mental health variables: depression level, anxiety level, and general mental health, as well as five cultural and socioeconomic factors: age, family income, perceived social support, gender, and ethnic (tribal) identity. Hypotheses included the following: (1) A positive correlation between age and the three mental health variables, and a positive correlation between experience of inter-ethnic discrimination and these variables. (2) A negative correlation between income level and the three mental health variables, and a negative correlation between perceived social support and these variables. (3) Higher levels of anxiety and depression among females and ethnic minorities. The results of the study supported our hypotheses regarding the experience of ethnic discrimination. Perceived social support was negatively associated with depression and general mental health, but not with anxiety. Members of minority ethnic groups reported higher levels of anxiety, but not depression. No significant results were found for age, gender, or household income level.

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INTRODUCTION

Psychology, a 2500-year-old discipline, is deeply rooted in Philosophy and nourished by the ideas of Plato and Aristotle. This ancient discipline, fueled by scientific advancements in the 19th century, went through an evolutionary process in America and became a new-and-improved version of the discipline we study today. Since then, the United States has become the world's most avant-garde center of Psychology. However, every coin has two sides. America exports the largest portion of Psychology theories to the world and dominates the discipline's research. With 80% of the research data coming from people of a Western, Education, Industrialized, Rich, and Democratic (WEIRD) background, the results of these studies are hardly applicable to people from other parts of the world. This study, conducted in Nairobi, Kenya, aimed to use locally collected data to understand how cultural and socioeconomic factors affect local mental health, and to avoid overgeneralizing conclusions suggested by research conducted on the WEIRD population. Five factors (age, gender, family income, social support, and tribal identity) were examined and their correlation with mental health was measured.

Age and Gender

Since the late 20th century, the academic community and the public have been aware that age and sex play a role in mental health. Research such as Gaitz and Scott (1972) showed that the combination of age and sex significantly resulted in different levels of mental health within a community. With the development of the gender movement and feminism, the study of sex gradually branched out into the study of gender, and sex or gender became one of the important factors we study in mental health today. The extensive research on the effects of age and gender on mental health shows that their effects on different groups of people are never the same and always interact with other factors. Husky et al. (2017) showed that females and younger children

in Europe were more likely to have phobias and separation anxiety disorder, but not depression. Fullen and Granello (2018) showed that the younger seniors (age 55-70) had lower levels of holistic wellness compared to the older seniors (age > 70), however, no sex difference was found in this study. During COVID, Chen et al. (2021) conducted a study in Iran and found a curvilinear relationship between age and depression, anxiety. It was concluded that age predicts depression and anxiety negatively for individuals younger than 45 and positively for individuals older than 70. Women were more likely to suffer from depression and anxiety than men. It also compared the results of the study with studies conducted in other countries, and the analysis showed that the adults in the Iranian sample were less likely to suffer from depression and anxiety compared to the younger adults (age 18-30) in the US, proving that a conclusion generated from one population cannot simply be translated to another population.

Family Income

Many studies have reported that family income has a positive correlation with mental health, meaning that a family with a lower income level is more prone to symptoms such as depression and anxiety. This phenomenon has been demonstrated not only at the national level, but also at the international level. Kwon et al. (2023) reported that South Korean children living in a household with a national income level in the bottom 50% were more likely to be depressed and stressed compared to their peers, and South Korean children in general had lower life satisfaction compared to children in Europe and 27 other countries. Kose (2020) reported a similar relationship between family income and mental health for individuals in Turkey. Many factors may explain or contribute to this relationship. For example, low-income families typically have less access to health care due to issues such as insurance or transportation difficulties (Guimarães et al., 2019). Lower income can mean less nutritious food on the table, and physical

health is always linked to mental health. Kwon et al. (2023) suggested that in low-income families, the daily stressors that parents are exposed to may not allow them to maintain a healthy relationship with their children due to their cognitive and mental health, which in turn may affect their children's cognitive and mental health. However, some studies show that other factors, such as neighborhood and household size, may buffer the negative effects of income on mental health. Murillo et al. (2020) reported that Hispanic/Latino families (many of whom are low-income) with larger extended families living in the United States were more likely to engage in healthier lifestyles. Molina and Alcántara (2013) reported that U.S.-born Latino families with children or adolescents generally have lower levels of psychological distress. If a low-income family is located in a less mobile neighborhood, that neighborhood might have higher social capital: the relationship between neighbors that provides better social support that is beneficial to one's mental health (Hurd et al., 2013). Because Kenyan families are typically large and some still live in a less mobile village, this paper also examined family size and neighborhood information, which leads to the next subsection: social support.

Social Support

Social support refers to any kind of support one can get from their social group when facing a problem, it could include material or tangible support, informational support, and emotional support (Ko et al., 2013). However, there are always some differences between actual social support and perceived social support. Compared to actual social support, perceived social support was found to be a better predictor of one's mental health (Hailey et al., 2023). Individuals with high perceived social support tend to face adversity with more ease and confidence, believing they can get help when needed, resulting in higher levels of resilience. During the COVID pandemic, resilience was suggested to be a particularly effective mediator between

social support and mental health among younger adults (Hou et al., 2020). Hailey et al. (2023) also found that individuals who had better perceived social support during COVID were more likely to engage in physical activity (PA), and low PA engagement is associated with poor mental health. An interesting phenomenon found was that men reported less need to receive emotional support than women. Women reported receiving emotional support from both relatives and nonrelatives, while men were more likely to receive emotional support from relatives only. Individuals who reported no need for social support, either instrumental or emotional, reported the lowest levels of depression, while individuals who reported a need for social support but did not have access to it reported the highest levels of depression. Individuals receiving emotional support from relatives only reported lower levels of depression compared to individuals receiving emotional support from nonrelatives only (Fiori & Denckla, 2012).

Tribal Identity

The nation of Kenya has over 40 tribes (Balaton-Chrimes, 2021). Tribe is a word created by the British colonizers to describe the groups of people who originally inhabited the African continent. After decades of repeated use, it became an identity with which Kenyans associated themselves. However, even though the word is so commonly used, because of the misconception and prejudice it implies, this paper would use a more neutral word: ethnicity, instead. Before the arrival of the British, the land of Kenya was never unified, but consisted of different groups of people who traded, intermarried, or rivaled each other. In order to maintain their power, the British exploited the relationships between the people of the land and artificially amplified the discrepancy, thus setting the fuse for the current ethnic conflict. The colonizers divided the provinces into different districts and assigned different proportions of groups to each of them, with one ethnic group making up the majority of the population of a district. This organization

created a sense of ‘owners and outsiders’ for the majority and minority groups living together in a given area. The occupation was divided on the basis of ethnic groups, creating advantaged and disadvantaged groups. Based on the policy of ‘divide and rule’, churches were also distributed by region, causing conflicts of faith, such as the assignment of Luo and Kisii to the Seventh-Day Adventist (SDA) and the assignment of Kamba and Kalenjin to the African Inland Church (AIC). Willis and Gona (2013) concluded that the so-called ‘tribes’ were artificial products of the colonial experience, such as the innovative Mijikenda Union, which was accepted to represent the previously separated ‘nine tribes’ by ascribing common interests and values to them.

Thus, all the inequalities and conflicts of interest have created a postcolonial Kenyan politics characterized by ethnic rivals. Kenyan political power is divided between the national and county levels, with each county labeled with its respective ethnicity competing for national resources. Political parties represent their ethno-regional interests. A political leader’s assumption of office determines the status and resources available to his or her ethnic group during his or her tenure. The unequal distribution of resources and the discrimination resulting from these implicit rules exacerbate inter-ethnic tensions. When political tensions are high, inter-ethnic violence is common, often accompanied by the eviction of so-called ‘outsiders’ (the minority group in a county) to their ancestral lands (Njoroge, 2014). In this context, it is reasonable to suggest that inter-ethnic discrimination may be a factor affecting mental health in Kenya. Although research on this topic is scarce, Osborn et al. (2020) found that members of minority tribes reported higher levels of anxiety than members of majority tribes. Similar research on racial discrimination in the U.S. also provides some clues on which to build.

Mental Health in Kenya and Previous Research

The African country of Kenya is among those who have not benefited much from the advancements made in Psychology. Two factors contribute to this phenomenon: the fact that Psychology has not been popularized in Africa and the non-applicability of current Western research on its people. For instance, Kenya is divided into 47 counties. In 2014, one of the counties named Kilifi had only two public outpatient psychiatric facilities within general hospitals. The drug supplies of these units were often inadequate. Additionally, no private psychiatric clinics, inpatient facilities, or community-based facilities were available in the area (Bitta et al., 2017). In other counties, it has been reported that the staffs working in the mental health facilities lacked proper training. They were often trained for other health specialties and reassigned to the mental health department by the hospital. As a result, many lacked the necessary skills and enthusiasm for their job (Memiah et al., 2022). Furthermore, Kenya is still searching for standardized mental assessment tests that are valid for its population (Memiah et al., 2022; Watson et al., 2019). Due to prominent cultural differences, common assessments that are widely utilized in the Western world are not entirely applicable to Kenyan individuals. The use of these inapplicable assessments in Kenyan mental health facilities and by researchers theoretically leads to suboptimal results.

Relatively little research has been conducted on cultural and social factors related to mental health issues in Kenya. Osborn et al. (2020) discovered a trend where the age of high school students was negatively correlated with the social support they perceived they received, and therefore positively correlated with depression and anxiety levels. Additionally, females reported higher levels of anxiety, as did members of the minority tribes mentioned above. An advantage of this study was its multi-site nature, as it was conducted in five schools, enhancing

the external validity of the findings. However, as previously stated, Osborn et al. (2019) employed Western-developed assessment tools like many other researches conducted in Kenya, resulting in three measures with Cronbach's alpha values below the minimum of 0.70 being excluded from analysis. This limitation restricts the extent to which mental health-related factors can be effectively understood through this research.

To avoid relying solely on assessments developed in the West, an essential skill called cross-cultural adaptation (CCA) is highly recommended. CCA is used when developing or adapting a questionnaire for a specific country or region from one that has already proven effective. It may include the process of translation, back-translation, adaptation, and the involvement of local interpreters, expert translators, focus groups, and panels (Epstein et al., 2015). The purpose of CCA is to design the assessment to be valid for a specific population by taking into account language, culture, and social norms. This study included a 29-item questionnaire adapted by Watson et al. (2019) using the technique of CCA, which we will discuss in detail in the next section. While testing the validity and reliability of their newly developed assessment, Watson et al. (2019) included local experts and translators in their study and prioritized the assessments of Kenyan experts; this approach provided credible insights that helped mitigate potential bias towards "white men's pride and prejudice."

Conclusion

Over the past century, Western researchers have largely dominated academia, resulting in a significant lack of representation in research populations. Although awareness of this dilemma has been acknowledged, the path towards addressing this issue is ongoing. This study was designed to investigate the relationship between mental health issues and cultural, socio-economic factors in Kenya. The research question is as follows: Do group differences exist based

on age, gender, income, perceived social support, and ethnicity with regard to depression, anxiety, and other common mental health problems in Kenya? A positive correlation was hypothesized between age and the mental health problems we examined. Experiences with inter-ethnic discrimination were also hypothesized to be positively correlated with mental health problems. Income level and perceived social support were hypothesized to be negatively correlated with mental health problems. Finally, female and minority ethnic individuals were hypothesized to be more depressed and stressed.

METHOD

Participants

The study recruited participants from the United States International University Africa (USIU) in Nairobi, Kenya. The intention of the study was to recruit Kenyan students over the age of 18. However, due to the online nature of the survey, researchers were unable to supervise the process of consent form reading, thus additional responses were collected from Africans such as Burundians and Cameroonians. A separate analysis of the Kenyan participants and the other Africans showed that they presented similar results. Therefore, the decision was made to retain the other participants in the study. A total of 42 participants were recruited through the USIU hostel group chat via WhatsApp and word of mouth from students and staff known to the researcher. Four incomplete responses were excluded from data analysis, resulting in a final sample size of 38, including 27 Kenyans. The mean age of the participants was 24.38 ($SD = 5.59$), ranging from 18 to 38 years old. The sample included 14 males (36.84%), 23 females (60.53%), and 1 (2.63%) who self-identified as non-binary or third gender. Twenty-four participants (63.16%) self-identified as major ethnicity, 2 (5.26%) self-identified as minor ethnicity, 6 (15.79%) self-identified as somewhere in between, and 6 (15.79%) preferred not to answer the question. For self-perceived income, 16 participants (42.11%) said they thought their

weekly household income was enough to support the family, 10 (26.32%) said it was not enough, 4 (10.53%) said maybe, and 8 (21.05%) preferred not to answer the question. Regarding household size, 13 participants (34.21%) reported living in a household of 1-3 people, 8 (21.05%) reported living in a household of 4-5 people, 6 (15.79%) reported 6-7 people, 4 (10.53%) reported more than 7 people, and 7 (18.42%) preferred not to answer the question. Thirty-two participants (84.21%) reported living in the city, 3 (7.89%) reported living in the village, 1 (2.63%) reported other, and 2 (5.26%) preferred not to answer the question. Detailed information on nationality, ethnicity, and weekly household income is presented in Tables 1.

Measures

The research was conducted in the form of a survey. Three surveys were utilized, including: 1) the 29-item questionnaire adapted from the General Health Questionnaire-28 (GHQ-28) and Patient Health Questionnaire-9 (PHQ-9) with 6 additional emic items by Watson et al. (2019) mentioned in the previous section; 2) a self-adapted questionnaire assessing inter-ethnic discrimination based on the Adapted Perceived Racism Scale (McNeilly et al., 1996); and 3) a demographic survey.

The 29-item questionnaire included four subscales, two assessing depression, one assessing anxiety, and one assessing general psychological and emotional health. Watson et al. (2019) localized the questionnaire by rephrasing some items into phrases more easily understood by Kenyans. For example, they revised the question “Have you been getting a feeling of tightness or pressure in your head?” from the GHQ-28 to “Do you feel like your head has been pressed like a chapati?” in their final version of the mental health survey. Chapati is a popular Kenyan household dish that is shaped like naan and flat like pancakes. This adaptation allows Kenyans of all education levels who need mental health services to better understand the

question. Due to research ethics concerns, this study excluded questions that explicitly or implicitly asked about suicidal ideation, resulting in three final subscales and a total of 21 items ($\alpha = .94$). The internal consistency of each subscale was promising ($\alpha = .83, \alpha = .90, \alpha = .91$). The Anxiety subscale (from the GHQ-28) had a total of seven questions and used a Likert scale of 1 to 4, resulting in a total possible score of 7 minimum and 28 maximum. The scale options ranged from: (1) Not at all, to (4) Much more than usual. The Depression subscale (from the PHQ-9) was composed of eight questions that ask respondents to rate on a 4-point scale ranging from “Not at all” to “Nearly every day”, with a minimum possible score of 8 and a maximum possible score of 32 in total. The general psychological and emotional health subscale consisted of six questions. Similarly, the Likert scale ranged from 1 to 4, with a maximum potential score of 24, and the response options varied from “Not at all” to “Nearly every day”. The mean item scores for each subscale were used in the final analysis.

The Inter-ethnic Discrimination Questionnaire ($\alpha = .87$) implemented a 5-point Likert scale. Participants were presented with six questions with response options ranging from “never” to “very often”. For each question, participants had to report the frequency of a particular discriminatory event that occurred in the past year and over the course of their life, resulting in a total of 12 questions. The item score means for past year frequency ($\alpha = .73$) and lifetime frequency ($\alpha = .75$) were used separately for the final analysis. For the complete questionnaire, see Table 2.

Procedure

The survey was administered through Qualtrics. Participants were provided with a consent form on the first page of the link prior to the commencement of the actual survey. The consent form affirmed that participants’ personal identification information would not be

recorded. The respondents had the freedom to abandon the survey at any point or refrain from answering any question they were not comfortable with by selecting “prefer not to say.” If participants consented, the questionnaire would proceed to the mental health assessment, Inter-ethnic Discrimination Questionnaire, and the demographic survey (in that order), followed by a debrief form. If participants did not consent, the questionnaire would skip directly to the last page, which thanks them for their time spent taking the survey. No significant harm was anticipated other than minor emotional discomfort related to questions that asked participants to reflect on their mental health or experiences of discrimination. This discomfort was expected to be no more than that typically encountered in a participant’s daily life. The duration of the survey was expected to be approximately 20 minutes.

Table 1

Sample Demographic Characteristics

Baseline characteristic	n	%
Nationality		
Burundian	2	5.26
Cameroonian	2	5.26
Kenyan	27	71.05
South Sudan	1	2.63
Tanzanian	1	2.63
Ugandan	3	7.89
Zambian	1	2.63
Zimbabwean	1	2.63
Ethnicity		
Ankole	1	2.63
Arab	1	2.63
Baganda	1	2.63
Batooro	1	2.63
Bemba	1	2.63
Fulbe	1	2.63
Gbaya tribe east cameroon	1	2.63
Giriana	1	2.63
Kalenjin	1	2.63
Kamba	4	10.53

Kikuyu	7	18.42
Kikuyu/Kisii	1	2.63
Kisii	3	7.89
Kurya	1	2.63
Luhya	1	2.63
Luo	4	10.53
Meru	1	2.63
Nuer	1	2.63
Shona	1	2.63
Somali	1	2.63
None	2	5.26
Prefer not to say	2	5.26
Weekly household income		
Less than Sh1000	3	7.89
Sh1000-Sh5000	3	7.89
Sh5000-Sh10,000	2	5.26
Sh10,000-Sh15,000	2	5.26
Sh15,000-Sh20,000	1	2.63
Greater than Sh20,000	8	21.05
Prefer not to say	17	44.74

Table 2

Inter-ethnic Discrimination Questionnaire

	Never	Rarely	Sometimes	Fairly Often	Very Often
1. You have been called insulting names related to your tribe.					
How often has this happened in the past year?	1	2	3	4	5
How often has this happened during your life?	1	2	3	4	5
2. People “talk down” to you because of your tribal identity.					
How often has this happened in the past year?	1	2	3	4	5
How often has this happened during your life?	1	2	3	4	5
3. You have been followed					

or stopped by the others
because of your tribal
identity.

How often has this happened in the past year?	1	2	3	4	5
--	---	---	---	---	---

How often has this happened during your life?	1	2	3	4	5
--	---	---	---	---	---

4. You know of people who
have gotten into trouble
(gotten hurt, beaten up)
because of their tribal
identities.

How often has this happened in the past year?	1	2	3	4	5
--	---	---	---	---	---

How often has this happened during your life?	1	2	3	4	5
--	---	---	---	---	---

5. People have made fun of
your accent because of your
tribal identity.

How often has this happened in the past year?	1	2	3	4	5
--	---	---	---	---	---

How often has this happened during your life?	1	2	3	4	5
--	---	---	---	---	---

6. You have trouble getting
into a romantic relationship
or a friendship because of
your tribal identity (For
example, people have
accused women from your
tribe of using witchcraft and
want nothing to do with
you).

How often has this happened in the past year?	1	2	3	4	5
--	---	---	---	---	---

How often has this happened during your life?	1	2	3	4	5
--	---	---	---	---	---

RESULTS

Descriptives

Participants reported a mean anxiety score of 2.11 ($SD = .69$, 95 % CI [1.87, 2.34]), and a mean depression score of 1.99 ($SD = .73$, 95 % CI [1.74, 2.23]). The mean general psychological health score was 1.80 ($SD = .75$, 95 % CI [1.54, 2.06]). Inter-ethnic discrimination experienced annually had a mean score of 1.44 ($SD = .45$, 95 % CI [1.29, 1.60]), while inter-ethnic discrimination experienced lifetime had a mean score of 1.51 ($SD = .49$, 95 % CI [1.35, 1.68]).

Correlations

Consistent with previous research (Osborn et al., 2020), we found that depression and anxiety levels were strongly associated with each other, $r(36) = .72$, $p < .001$, 95% CI: [0.50, 0.85]. In addition, general psychological health (which in this case means having general psychological problems) was strongly associated with anxiety, $r(36) = .72$, $p < .001$, 95% CI: [0.48, 0.85], and strongly associated with depression, $r(36) = .68$, $p < .001$, 95% CI: [0.44, 0.83]. See Table 3 for associations between depression, anxiety, and discrimination scores.

Associations Between Anxiety, Depression, General Psychological Health and Inter-ethnic Discrimination

As hypothesized, there was a positive correlation between anxiety levels and inter-ethnic discrimination experiences perceived annually, $r(36) = .45$, $p < .01$, 95% CI: [0.13, 0.69], as well as inter-ethnic discrimination experiences over one's lifetime, $r(36) = .47$, $p < .01$, 95% CI: [0.14, 0.71]. Depression levels also correlated positively with inter-ethnic discrimination experiences perceived annually, $r(36) = .48$, $p < .01$, 95% CI: [0.18, 0.70], as well as inter-ethnic discrimination experiences over one's lifetime, $r(36) = .46$, $p < .01$, 95% CI: [0.15, 0.69].

General psychological health correlated positively with inter-ethnic discrimination experiences one perceived annually, $r(36) = .55, p < .01, 95\% \text{ CI: } [0.25, 0.76]$, and inter-ethnic discrimination experiences over one's lifetime, $r(36) = .68, p < .001, 95\% \text{ CI: } [0.43, 0.84]$. Finally, inter-ethnic discrimination experiences perceived annually was correlated with inter-ethnic discrimination experiences over one's lifetime, $r(36) = .89, p < .001, 95\% \text{ CI: } [0.78, 0.94]$. The effect sizes for these correlations were medium to large.

Associations Between Anxiety, Depression, General Psychological Health and Perceived Social Support

Perceived social support, either instrumental, $t(35) = -2.18, p < .05$, or emotional, $t(35) = -2.93, p < .01$, was negatively correlated with depression according to the independent samples t -test. Participants who had more perceived instrumental social support had fewer general mental health problems, $t(32) = -2.28, p < .05$, as did participants who had more perceived emotional social support, $t(32) = -2.21, p < .05$. However, no relationship was found between perceived social support and anxiety.

Anxiety and Ethnic Identity

A result from an independent samples t -test indicated that participants who self-identified as minority ethnicity had higher levels of anxiety ($M = 2.52, SD = .71$) compared to participants who self-identified as majority ethnicity, $t(33) = 3.02, p < .01$. However, participants who self-identified as minority ethnicity did not have higher levels of depression or poorer overall psychological health.

Other Factors

Age, gender, household income level, household size, and place of residence were not found to be associated with any of the mental health problems tested.

Table 3

Table of Correlations

	1	2	3	4	5
1. Anxiety	--				
2. Depression	.72***	--			
3. General Mental Health	.72***	.68***	--		
4. Annual Discrimination Experiences	.45**	.48**	.55**	--	
5. Lifetime Discrimination Experiences	.47**	.46**	.68***	.89***	--

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, two tailed.

DISCUSSION

This study was conducted among university students at USIU, Kenya. Three surveys were administered to collect their anxiety, depression, general psychological health scores as well as other cultural, socioeconomic information. Based on the mean scores of depression, anxiety, and psychological health, we concluded that the average levels of these mental health problems of the study sample were moderate. Results suggested that perceived inter-ethnic discrimination experiences, either annually or over the life course, were positively correlated with depression, anxiety, and overall mental health. Results also suggested that perceived instrumental and emotional social support correlated negatively with depressive symptoms and general mental health, but not with anxiety symptoms. Differences in anxiety levels were found between self-identified minority and majority ethnic groups. However, no differences in depression levels were found between these two groups. No relationship was found between age,

gender, household income level, household size and place of residence and the mental health aspects tested.

One explanation for the non-significant findings on age, gender, household income level, household size, and place of residence could be the small sample size. Another explanation could be the setting of the study. USIU is ranked among the top 10 universities in Kenya, in some years even among the top 5 (*Top Universities in Kenya | 2024 University Rankings*), which suggests a better educated student population and thus a more age- and gender-neutral environment. Students attending a top university may also have fewer financial concerns, which is more or less supported by the data collected from our participants, who mostly answered yes and maybe (27 out of 38 participants) to our question on self-perceived income: “Do you feel that your weekly household income is enough to support your family?”. A similar explanation is proposed for why perceived social support was not correlated with anxiety symptoms and why self-perceived ethnic group size was not correlated with depressive symptoms. We suggest that depressive experiences usually occur during or after an unpleasant event, but anxiety experiences could occur before an event, when one anticipates it or simply worries about it. Therefore, anxiety is more related to ethnic identities, where members of ethnic minorities are constantly worried about being discriminated against, and the frequency of this worry is generally higher compared to the actual discrimination experiences they have had. As for perceived social support, it is possible that the social support we receive targets actual events better than presumed ones. It is highly recommended that future studies investigate this hypothesis.

Some of the findings of this study were consistent with those of previous studies. For example, the strong association between depression, anxiety, and general mental health problems, or the association between minority ethnicity and anxiety. Osborn et al. (2020) also found no

relationship between ethnic identity and depression. This consistency suggested a pleasing message that our study may be heading in the right direction, which further suggests a possible improvement in mental health services and mental health assessment for Kenyans in the near future. The results that were not consistent with previous studies, as we just discussed above, lead to new potential studies. We recommend and look forward to seeing all the factors tested in a new setting or with a different study population.

Limitations and Future Directions

Although this study had many significant findings, it also had several limitations. The first and a limitation we had already pointed out was the sample size of the study. Due to the time frame and location of the study, recruitment of participants was difficult. It is suggested that future studies replicate our protocol with a larger sample group to see if other associations can be found. Another limitation is that although the original goal was to study students in Kenya, participants from other countries were also included in the data. Thus, it is also suggested that future studies use only data from Kenyan participants to obtain culturally-specific results. Although the data from the other African participants showed similar trends to the Kenyan participants, this similarity may not remain if larger samples from multiple countries were included in the data. Like many other studies, we had a higher response rate from female participants, resulting in an uneven gender sample. The time frame and location of the study also did not allow for a pilot study. Therefore, the reliability of the surveys was tested after the data were collected, and a validity test was never performed. However, the good Cronbach's alphas addressed some of the problems. Finally, the researchers in this study were all cultural outsiders to Kenya. Although one of the researchers had some experience living in Kenya and had the help of cultural insider friends in conducting background research and developing the surveys, there

was certainly bias and ignorance of certain research-related knowledge. For future studies, we suggest that cultural outsider researchers collaborate with local researchers or form a team of local researchers only, not only because they know their society well enough to formulate better research questions, but also because it is easier for cultural insiders to gain the trust of participants.

CONCLUSION

The increased focus on Psychology has revealed the relationship between numerous cultural factors and mental health, as well as the relationship between psychological factors and physical health (Rasul, 2004; Satcher, 2001). While the general theory may be universally applicable, the study results of the relationship between specific factors and mental health from one study cannot necessarily be applied to all populations. When discussing the relationship between cultural, socioeconomic factors and mental health, it is essential to conduct local studies rather than using research findings from other areas to maximize the benefits of science to humanity. This study examined the relationship between age, gender, family income, social support, ethnic identity and mental health in Kenya. It is recommended that future research examine additional factors, including dietary habits and family expectations (e.g., pressure to achieve certain goals set by family members).

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