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ORIGINAL PAPER

Prevalence of psychological distress, depression and suicidal ideation in an indigenous population in Panamá

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Abstract

Objective The aim of this study was to investigate the prevalence of serious psychological distress (SPD), depression, and suicidal ideation in an adult Indigenous population in Panamá.

Methods Data were collected from 211 Kuna adults using a paper-based survey. Depression and suicidal ideation were measured using the Patient Health Questionnaire (PHQ-9), and SPD was measured using the Kessler-6. Univariate analyses were used to describe demographic variables, followed by chi^2 tests to compare differences in demographic variables for each of the mental health outcomes (depression, serious psychological distress, suicidal ideation). A regression model, adjusted for all demographic variables, was then run for each mental health outcome to understand independent correlates.

Results Within the sample surveyed, 6.2% (95% CI 3.4–10.4) reported serious psychological distress, 32.0% (95% CI 25.7–38.9) reported depression, and 22.9% (95% CI 17.4–29.1) reported suicidal ideation. Significant demographic differences existed with 14% of individuals between the age of 60–90 and 17% of individuals with no education reporting SPD. Women were nearly 5 times more likely to report depression than men (OR 4.90, 95% CI 1.27–19.00) and those with higher incomes were less likely to report depression (OR 0.32, 95% CI 0.13–0.78).

Conclusion High levels of depression, SPD, and suicidal ideation were present in an Indigenous Kuna community in Panamá. Women and individuals with low income were more likely to report depression, and SPD was more common in older individuals and those with low levels of education. Suicidal ideation was high across all demographic factors, suggesting that a community-wide program to address suicide may be warranted.

Keywords Indigenous · Depression · Serious psychological distress · Suicidal ideation · Panamá

Introduction

Globally, mental health and substance use disorders are the leading cause of years lived with disability, accounting for 7.4% of disease burden, more than HIV/AIDS, tuberculosis, diabetes, and injuries [1]. Major depressive disorder is one of the five leading causes of years lived with disability and was among the top ten causes of years lived with disability across the 188 countries included in the Global Burden of Disease Study [2, 3]. In addition, suicide is the second leading cause of death in individuals aged 15–29 and nearly 80% of suicides occurred in low- and middle-income countries [4]. Though suicide is preventable, comprehensive multisectoral suicide prevention strategies are generally needed to fight stigma, provide care, and support those impacted [4]. Unfortunately, treatment gaps are enormous, with gaps of more than 90% having been documented in low- and middle-income countries [5]. A growing evidence base indicates mental health and poverty interact, creating negative cycles where conditions of poverty increase risk for mental illness, and mental illness increases the risk of remaining in poverty [6]. As such, there is a need to address the mental health of vulnerable populations, such as Indigenous people, who are already experiencing worse physical health, higher levels of malnutrition, and low access to clinical care than the general population [7].

Indigenous populations are generally considered at higher risk for psychological distress and mental health disorders,

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due to deprivation, unemployment, loss of cultural lands or identity, racism, and social marginalization [7–10]. For example, over 80% of Indigenous women surveyed in a community-based study in Ontario, Canada reported severe depressive symptoms, and Indigenous adults in Australia were found to have three times the level of psychological distress as non-Indigenous adults [11, 12]. National data from Australia also found that non-Indigenous individuals had higher rates of mortality due to mental and behavioral disorders [13, 14]. However, in a systematic review of studies in the Americas and Australia comparing rates in Indigenous to non-Indigenous controls, Kisely et al. found no differences in depression, anxiety, or panic disorders [10, 15]. Therefore, it is necessary to investigate mental health burden, particularly in Indigenous populations previously not incorporated into national estimates.

In Latin America, the majority of countries have a high mental health disease burden, compared to the global average [1]. A study that pooled global prevalence data for common mental health diagnoses found Latin America and the Caribbean had the second highest of World Bank regions for 12-month period prevalence at 22.2%, and the highest lifetime prevalence of low- and middle-income country regions at 33% [16]. Latin America and the Caribbean have over 400 different Indigenous groups, making up roughly 10% of the population [17]. In a study of adults living in the Amazon of Brazil, Indigenous adults were 2.5 times more likely than whites to have depression, and 32% of an Indigenous population in the Andean highlands of Ecuador showed severe depression [18, 19]. Though the burden of mental health in Latin America is high, generally suicide rates have been low [20]. This trend has been changing with suicide increasing recently in Latin America, despite underreporting [20]. Indigenous groups in Latin America that have been studied indicate higher rates of suicide, with nearly seven times more suicide in Indigenous populations than non-Indigenous in Brazil [20]. However, many Indigenous groups have not been studied, few interventions have been tested, and often evaluations fail to measure changes in overall rates or burden of disease [13, 21–24].

Much of the work in Indigenous populations has focused on Canada, the US, or Australia, and populations are often limited to adolescents or adults with comorbidities, such as HIV. In addition, studies consistently recommend consideration of biological, educational, economic, and socio-cultural factors that vary between communities [10]. As such, the aim of this study was to investigate the prevalence of serious psychological distress, depression, and suicidal ideation in an adult Indigenous population in Panamá. Understanding the correlates of mental health outcomes in this population will help develop community-based programs for adult Indigenous populations in Panamá and could be informative for communities throughout Latin America.

Methods

Research approvals

Indigenous Health International (IHI), founded in 2012, is an approved 501(c)(3) non-profit organization that collaborated with the Panamá Ministry of Health, the Kuna Congress, and the local Kuna community to conduct this study. IHI focuses on doing work globally that will meet the health care needs of Indigenous communities. IHI has served as a primary mechanism for conducting needs assessments, delivering health care, and conducting research to improve health services among the Indigenous communities in Panamá. The founder of IHI has established and maintained a relationship with Indigenous communities in Panamá for over 10 years. In addition to having a partnership with the Panamá Ministry of Health, IHI has received approval from the Director of Indigenous Health in Panamá, the national Kuna Congress, and local Kuna community leaderships to implement clinical and research programs among the Indigenous communities of Panamá with the aim to improve health services and build capacity at the local level. The Western Institutional Review Board (WIRB), an accredited organization, approved the research protocol, procedures, and study-related documentation. The WIRB has been providing human subjects and regulatory compliance for more than four decades across 70 different countries.

Population

Indigenous people account for 6% of the Panamanian population [25], many living in administrative regions within the country termed Indigenous zones. Panama's second largest Indigenous community is the Kuna Indians, who make up one-fifth of the Indigenous population in Panamá [26]. The community participating in this study is located off the coast of Panamá in the San Blas islands (see Fig. 1). Kuna communities are governed by a male elder leadership structure which maintains customs, practices, language, and dress [27]. Communities have access to primary education and basic healthcare, such as childhood immunizations, provided by the Panamanian government [28].

The Ustupu/Ogobsucum community is located in the San Blas islands on the Caribbean side of Panamá. Approximately, 3500 individuals live in the combined communities, which share one health clinic, staffed by the Panamanian Ministry of Health. Community members were invited to participate in the study through announcements at regular community meetings, and word-of-mouth.

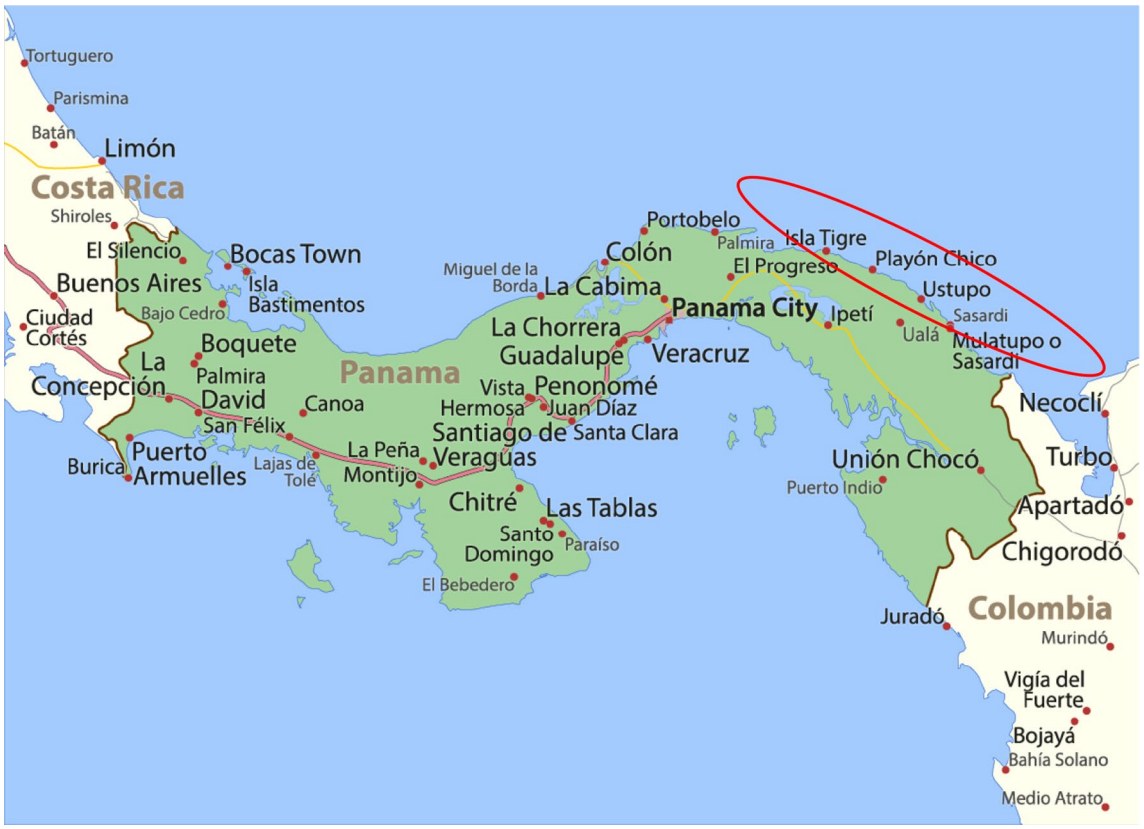

Fig. 1 Map of Panama indicating San Blas region

Adults (age 18 years and older) were eligible and were informed that information was being gathered as part of a research study and participation was voluntary. Medical care was not dependent on or a requirement of participation in the study.

Data collection

Data were collected using a paper-based survey conducted in the community. Questions were developed using validated measures for psychosocial factors, standardized health outcome measures, and questions from a Panamanian national survey on CVD risk factors titled "Panamanian prevalence of risk factors associated with cardiovascular disease in 18 year or older population survey" [29]. While there has been some speculation that mental health may manifest differently in Indigenous populations, scale validity studies show reliability of scales such as the Patient Health Questionnaire (PHQ) for depression, and the Kessler Serious Psychological Distress scale (SPD) for non-specific psychological distress [8, 30, 31]. A verbal consent process was used to ensure participants were aware they were participating in a research study, as approved by the Western Institutional Review Board.

Participants were recruited over a 1-week period. Possible participants were approached by community members trained by the research team to recruit both in the clinic and in the community, and the study was announced at community meetings each evening. While local community leadership support facilitates participation by community members, individual decision to participate was voluntary. The study team communicated with participants in Spanish and the survey was provided in Spanish for participants to complete. Local community health workers communicated with and read the survey to individuals in the local spoken language, Kuna, if requested.

Sample

This sample included 211 Indigenous Kuna adults who completed the survey. Sample demographics are shown in Table 1, indicating that the majority of respondents were women (73.0%) and married (70.4%). Age was distributed across all age groups, with about half of the sample with more than primary level education (53.8%). Half of the sample was categorized as poor (51.9%), with 37.0% reporting low income (less than $250 per month) and 11.1% reporting moderate income (equal to or more than $250 per month).

Table 1 Sample demographics ($n=211$)

Characteristic	Percent
Age	
18–39	40.1
40–59	32.4
60–90	27.5
Gender	
Male	27.0
Female	73.0
Education	
None	17.6
Primary	28.6
Secondary/university	53.8
Monthly income	
Poor	51.9
Low income	37.0
Moderate income	11.1
Marital status	
Married	70.4
Not married	29.6

Measures of mental health

Depression was measured by the nine-item Patient Health Questionnaire (PHQ-9), identified as a valid and reliable measure across multiple populations [32]. The internal reliability of the assessment was found to have a Cronbach's alpha greater than 0.85 [32]. The PHQ-9 asks 9 questions about frequency of symptoms from the DSM-IV for depression and scores each item as "0" (not at all) to "3" (nearly every day). Higher scores indicate more depressive symptoms with scores that are greater than or equal to ten categorized as depression, as this cut point for major depressive disorder [32]. The diagnostic validity of PHQ-9 was established in the United States to have a sensitivity of 88% and specificity of 88% for major depression [32]. Internal reliability was $\alpha=0.89$ and test–retest reliability was high [32]. In addition, cross-cultural validity of the Spanish version has shown it to have similarly high psychometric properties ($\alpha=0.80$, sensitivity of 80% and specificity of 87%) [33, 34].

Serious psychological distress (SPD) was measured using the six-item scale originally developed to provide a population level screening for non-specific psychological distress [35]. The six-item scale is routinely used by the US National Health Interview Survey and the WHO mental health survey [36]. Higher scores indicate more distress with a cutoff of 13 or above for SPD. An analysis of K6 data across 14 countries found high concordance with actual ratings of DSM-IV serious mental illness diagnoses [37].

Suicidal ideation was based on the 9th question of the PHQ-9, with any frequency of thoughts of harming oneself considered suicidal ideation. This item has been shown to be associated with increased risk of suicide [38].

Demographic variables

Standard demographic variables were collected using self-reported questions on age (as a continuous variable), sex (as a dichotomous male/female), education [primary (0–6 years of school), secondary (7–12 years of school), some college [13–17], college graduate or higher (18+)], and monthly family income. Monthly family income was then categorized based on conversations with community leaders into categories that would characterize poor (response of don't know), low income [response of < $250 balboa (1 balboa = US$1)], and moderate income (response of $250 balboa or more per month). The number of individuals supported by the family income was also asked. Marital status was asked with single, separated, divorced, or widowed categorized as 'not married' and married or other union categorized as 'married'. Finally, as obesity tends to be high in this population and has been shown to be associated with mental health in other populations, height and weight were collected at the time of the survey and used to calculate BMI. Normal weight was categorized as less than 25, with overweight/obese categorized as 25 and above.

Statistical analysis

First, frequencies were used to describe each demographic factor (age, sex, education, monthly income, and marital status) for the overall population. Secondly, proportions and confidence intervals for each of the three mental health outcomes (depression, serious psychological distress, suicidal ideation) were compared using chi^2 tests for categories of all demographic factors. Finally, three logistic regression models were run to understand the independent correlates of depression, serious psychological distress, and suicidal ideation. In the first model, depression served as the outcome with demographic factors and BMI served as independent predictors. In the second model, serious psychological distress served as the outcome with demographic factors and BMI served as independent predictors. In the third model, suicidal ideation served as the outcome with demographic factors and BMI served as independent predictors. Each model was adjusted for all predictors to allow investigation of independent correlates for each mental health outcome. All analysis was run using Stata v.14. Significance was determined based on a two-tailed alpha of $p<0.05$.

Results

Within the sample surveyed, 6.2% (95% CI 3.4, 10.4) reported serious psychological distress, 32.0% (95% CI 25.7, 38.9) reported depression, and 22.9% (95% CI 17.4, 29.1)

reported suicidal ideation. Table 2 shows the three mental health outcomes broken by each of the demographic categories. Significant demographic differences existed for serious psychological distress (SPD) with 14% of older individuals between the age of 60-90 years indicating SPD, compared to 3.6% of those age 18–39 and 1.5% of those age 40–59. In addition, 17% of individuals with no education reported SPD compared to 3.6% of those with a primary education and 3.8% of those with secondary/university education. Women reported more depression than men, with 36.2% compared to 21.1%. There were no significant differences in suicidal ideation.

Table 3 shows the independent correlates of the three mental health outcomes. After adjusting for all demographic variables, only depression showed independent association with demographic variables. Women were 4.9 times more likely to report depression than men (OR 4.90, 95% CI 1.27, 19.00, *p* value 0.02). Individuals with low or moderate income were less likely to report depression than those who were poor (low income significantly less likely, OR 0.32, 95% CI 0.13, 0.78, *p* value 0.01; moderate income trending toward significance, OR 0.21, 95% CI 0.04, 1.12, *p* value 0.07).

Discussion

Overall, rates of poor mental health were high in this Indigenous adult population living on the remote San Blas Islands off the coast of Panamá. Over 30% reported depression, 6% reported serious psychological distress and nearly 23% reported suicidal ideation. In addition, investigation into differences by demographic factors may provide targets for interventions to address mental health in this community. Serious psychological distress, which has been linked to a variety of mental health disorders, was more common in older individuals and those with no education. Depression was independently associated with gender and income, with women being more likely to report depression and higher income groups less likely to report depression compared to those who were poor. Suicidal ideation was high across all demographic factors, suggesting that a community-wide program to address suicide may be warranted.

This is the first investigation to our knowledge to specifically address the mental health concerns of the Kuna Indians of Panamá. Levels of depression are higher than the 12-month prevalence of 22% reported by the World Health Organization for low- and middle-income countries, and more similar to the 32% reported in a study of Indigenous

Table 2 Mental health measures by age, gender, education, and income

	Serious psychological distress (% and 95% CI)	Depression (% and 95% CI)	Suicidal ideation (% and 95% CI)
Overall	6.2% (3.4, 10.4)	32.0% (25.7, 38.9)	22.9% (17.4, 29.1)
Gender			
Men	5.3% (1.1, 14.6)	**21.1% (11.4, 33.9)**	19.3% (10.0, 31.9)
Women	6.6% (3.2, 11.8)	**36.2% (28.5, 44.5)**	24.2% (17.6, 31.8)
	$p=0.73$	$\mathbf{p=0.04}$	$p=0.05$
Age			
18–39	**3.6% (0.8, 10.2)**	31.7% (21.9, 42.9)	20.5% (12.4, 30.8)
40–59	**1.5% (0.04, 8.3)**	28.1% (17.6, 40.8)	19.7% (10.9, 31.3)
60–90	**14.0% (6.3, 25.8)**	37.5% (24.9, 51.5)	28.1% (17.0, 41.5)
	$\mathbf{p=0.01}$	$p=0.54$	$p=0.47$
Education			
None	**17.1% (6.6, 33.6)**	29.4% (15.1, 47.5)	28.6% (14.6, 46.3)
Primary	**3.6% (0.4, 12.3)**	42.9% (29.7, 56.8)	30.4% (18.8, 44.1)
Secondary/university	**3.8% (1.0, 9.4)**	27.9% (19.5, 37.5)	17.8% (11.0, 26.3)
	$\mathbf{p=0.01}$	$p=0.14$	$p=0.14$
Monthly income			
Poor	8.4% (3.9, 15.4)	39.1% (29.7, 49.1)	23.4% (15.7, 32.5)
Low income	2.6% (0.3, 9.2)	26.7% (17.1, 38.1)	20.8% (12.4, 31.5)
Moderate income	8.7% (1.1, 28.0)	21.7% (7.4, 43.7)	30.4% (13.2, 52.9)
	$p=0.25$	$p=0.11$	$p=0.63$

Categories of each demographic factor compared for each outcome separately using chi^2 tests

CI confidence interval

Bold font indicates statistical significance ($p<.05$)

Table 3 Independent correlates of mental health based on adjusted logistic models for each outcome

	Serious psychological distress	Depression	Suicidal ideation
Age			
18–39 (ref)			
40–59	0.40 (0.04, 4.39) $p=0.46$	0.71 (0.28, 1.78) $p=0.46$	0.85 (0.33, 2.17) $p=0.73$
60–90	2.02 (0.17, 23.56) $p=0.58$	3.86 (0.89, 16.75) $p=0.07$	1.40 (0.37, 5.28) $p=0.62$
Gender			
Male (ref)			
Female	1.06 (0.11, 10.39) $p=0.96$	**4.90 (1.27, 19.00)** ***p* = 0.02**	1.32 (0.44, 3.98) $p=0.62$
Education			
None (ref)			
Primary	0.41 (0.03, 5.39) $p=0.50$	3.37 (0.78, 14.44) $p=0.10$	1.02 (0.27, 3.83) $p=0.98$
Secondary/university	0.47 (0.03, 7.68) $p=0.60$	2.52 (0.51, 12.41) $p=0.25$	0.67 (0.15, 2.96) $p=0.59$
Monthly income			
Poor (ref)			
Low income	0.24 (0.03, 2.27) $p=0.21$	**0.32 (0.13, 0.78)** ***p* = 0.01**	0.76 (0.31, 1.87) $p=0.55$
Moderate income	2.29 (0.29, 17.81) $p=0.43$	0.21 (0.04, 1.13) $p=0.07$	1.94 (0.54, 6.96) $p=0.31$
Marital status			
Not married (ref)			
Married	3.48 (0.57, 21.10) $p=0.18$	1.55 (0.62, 3.88) $p=0.34$	1.98 (0.74, 5.32) $p=0.18$
Obesity			
Normal weight (ref)			
Overweight/obese	0.34 (0.51, 2.28) $p=0.27$	2.17 (0.95, 4.96) $p=0.06$	1.37 (0.58, 3.17) $p=0.47$

Each model adjusted for age, gender, education, monthly income, marital status, and obesity

Bold font indicates statistical significance ($p<0.05$)

communities in Ecuador [16, 19]. Very few studies on mental health have been conducted in Indigenous communities of Latin America. For example, a review of interventions to improve access to health services for Indigenous populations found only seven studies focused on mental health, three of which were aimed at reducing substance and alcohol abuse, and four focused on suicide prevention [22]. Additionally, studies were primarily completed in the United States and focused on adolescents [22]. This study provides support for targeted attention to the mental health of Indigenous groups living in lower and middle-income countries, to prevent negative outcomes linked to poor mental health [18, 19]. The World Health Organization's (WHO) mental health action plan for 2013–2020 points out the increased risk for Indigenous populations, and recommends providing comprehensive and integrated mental health care in community-based settings [39]. Based on the review on access to health services for Indigenous populations, previously tested strategies incorporated multiple components, including education and peer support, and intervention information was adapted for the Indigenous culture [22]. Evidence for the treatment of mental health among Indigenous populations in Australia suggests that integration and collaboration between physical and mental health care were critical for ongoing health promotion [13]. Given the limited data available for Indigenous communities in Latin America, development and testing of mental health interventions should be an area of focus for clinicians and researchers interested in improving public health in Indigenous communities.

The level of suicidal ideation in the Kuna community participating in this study was extremely high when compared to a systematic review of studies of Indigenous Latin America communities, which reported the highest rate of 3.4% in Colombia [20]. The review noted that suicide rates in Latin American Indigenous communities have been

increasing over time, despite general underreporting in these countries [20]. While the studies found in the systematic review of mental health interventions in Indigenous populations showed less suicidal ideation after intervention delivery, only one study was controlled and it did not use random allocation [20]. A second systematic review focused on suicide prevention interventions in Indigenous populations residing in high income countries and found similar methodological concerns, though three studies did show significant improvement in suicide rates [21]. The WHO Mental Health Action Plan specifically identifies suicide prevention strategies for vulnerable groups as a priority [36]. Given the limited research in Indigenous populations outside North America and Australia, and high burden in this community, suicide prevention efforts should be a priority for interventions in the Kuna community. The high prevalence suggests a need for more community-wide focus, rather than targeting of only those with depressive symptoms, which aligns with WHO's recommendation to focus suicide prevention efforts at the community level [4]. Health care services offered on to the Kuna community should also incorporate suicide prevention, focusing on early identification and effective management [4]. WHO recommends an emphasis on developing activities in countries based on areas where the greatest need exists [4]. Given the worldwide burden of suicide on ages 15–29, and the high rate of suicidal ideation in this community as a whole, targeting efforts to young adults in the Kuna communities should be of particular importance. Efforts such as encouraging dialogue in the community to decrease stigma, increasing access to mental health treatment through the state-sponsored health centers, and providing social support through community programs are evidence-based first steps based on WHO recommendations [4].

This study provides targeted information to address the mental health concerns in a remote Indigenous group with limited access to healthcare. However, limitations in the study exist, including the one-time collection of data making it unfeasible to follow health through time and make any comment on causality of relationships. In addition, given the unique attributes of the Kuna community, generalization to other Indigenous groups may be limited. The need for targeted investigation in other Indigenous communities remains, however, particularly given the high prevalence of mental health concerns. Finally, this study used the PHQ-9 survey to measure both depressive symptoms and suicidal ideation. Alternative scales or interview by a psychologist/psychiatrist may provide additional insight in the future, particularly if interested in understanding cultural nuances that may differ by population.

In conclusion, high levels of depression, serious psychological distress, and suicidal ideation were present in the Indigenous Kuna community in Panamá. Women were more likely to report depression, whereas individuals with low or moderate income were less likely than those who were poor to report depression. Serious psychological distress was more common in older individuals and those with low levels of education. Given the high prevalence of mental health concerns and limited evidence regarding best practices, clinicians and researchers should focus on directly addressing mental health, and suicide prevention in particular, in Indigenous communities in Latin America to improve public health.

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Author contributions LEE obtained funding for the study, coordinated data collection, conducted statistical analyses, contributed to drafting the article and revised the article critically for important intellectual content. RJW and JAC participated in data collection and contributed to drafting the article and revised the article critically for important intellectual content. AZD drafted the manuscript and revised the article critically for important intellectual content. All authors were involved in conception and design and approved the final manuscript.

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Compliance with ethical standards

Conflicts of interests The authors declare that they have no competing interests.

Ethics approval The current research protocol, research procedures, and study related documentation was approved by the Western Institutional Review Board (WIRB). The WIRB, is an accredited organization that has been providing human subjects and regulatory compliance for more than 40 years across 70 countries.

Consent for publication Consent for publication was obtained from leaders of both study communities.

Availability of data and material The dataset generated and analyzed during the current study is not available because of confidentiality agreement with the study communities.

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