Prevalence and Sociodemographic Correlates of Psychotic and Mood Disorders among the Population in Bungoma County, Kenya

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ABSTRACT

Mental, neurological, and substance use disorders (MNS) pose a significant global health challenge, affecting a quarter of the world's population and contributing to a substantial portion of the global disease burden. Access to essential treatment remains challenging, particularly in low and middle-income countries (LMICs). This study focuses on the scarcity of mental health resources in Kenya, particularly in Bungoma County, where community-level perspectives are often overlooked. The research aims to bridge this gap by investigating the prevalence and sociodemographic correlates of psychosis and mood disorders in the region, aligning with the World Health Organization's call for holistic mental health services. The study was conducted in Bungoma County, Kenya, and employed a descriptive cross-sectional design. The study population was 1,670,570 as per the Kenya census 2019. The sampling strategies used were purposive, stratified and simple random sampling with a sample size of 762 respondents. A stratified random sampling method ensured representation from each sub-county, maintaining proportionality based on population size. The study utilized the MINI International Neuropsychiatric Interview (MINI) for screening, a structured diagnostic psychiatric interview, and conducted structured interviews with trained research assistants. Statistical analyses, including descriptive, bivariate, and multivariate analyses were performed to determine prevalence and sociodemographic correlates. Among 762 respondents, 78.2% met the lifetime criteria for at least one of the four screened mental health conditions. Depression was the most prevalent (73.8%), followed by bipolar mood disorder (13.8%) and psychosis (1.8%). Sociodemographic factors significantly associated with these disorders included marital status, employment status, and income. Male persons were at a higher risk of experiencing psychosis and mood disorder (odds 1.37); the odds of youths having psychosis and mood disorder was higher (odds 1.42); low-income earners of less were 1.685 times likely to experience psychosis and mood disorder and people who lived alone were 1.641 times more likely to suffer psychosis and mood disorder. This study underscores the urgent need for targeted mental health interventions in Bungoma County, Kenya. It emphasizes the prevalence of mental health conditions and the sociodemographic factors influencing them. The findings highlight the importance of considering the local context in mental health interventions, aligning with global calls for holistic, community-driven mental health services.

Key Words: Bipolar, Bungoma, Mental Health Illness, Mood Disorder, Psychosis

I. INTRODUCTION

Mental, neurological, and substance use disorders (MNS) represent a significant global health challenge, affecting approximately a quarter of the world's population and contributing to 14% of the global disease burden (Vigo *et al*., 2016). Despite the scale of this issue, access to essential treatment remains a substantial challenge, particularly in low and middle-income countries where up to three-quarters of affected individuals lack the necessary care (World Health Organisation [WHO], 2017). The World Health Organization's Mental Health Action Plan for 2013-2020 emphasizes the need for holistic, well-coordinated mental health services delivered in community-based contexts, aiming to empower individuals with mental disabilities and prioritize mental health promotion and prevention efforts

(WHO, 2016). In many countries, mental health resources are scarce, with less than 1% of the healthcare budget allocated to mental health initiatives (Docrat et al., 2019).

This scarcity of mental health resources is evident in Kenya, where data on the prevalence of mental disorders often originates from hospital environments, potentially missing the community-level perspective. In 2017, Kenya was ranked fifth in depression cases in Africa by the World Health Organisation (WHO, 2017). For instance, a population-based survey in Nyanza revealed a prevalence rate of 10.3% for common mental disorders, shedding light on the issue (Jenkins et al., 2015). Another study in Nandi County found that 45% of respondents received a lifetime diagnosis for at least one mental disorder, with only a small fraction having received an official diagnosis (Kwobah et al., 2017). These disparities highlight the urgent need for comprehensive community-driven strategies to address the treatment deficit in Western Kenya. In Kenya, there is research on mental health problems which are majorly hospital-based thus leaving a gap in knowledge on the general population. In Bungoma County, there is no known research on mental health research focusing on the community.

1.1 Statement of the Problem

Mental health is a big challenge facing the global population as the demographic changes have increased by 13% (Thyloth et al., 2016). Despite the significant global health challenge posed by mental, neurological, and substance use disorders (MNS), a quarter of the world's population continues to be affected, contributing substantially to the global disease burden. Mental health experts have estimated that one in every four Kenyans may be suffering from a mental health-related issue, ranging from mild to severe disorders (Kuyoh, 2023). Access to essential mental health treatment remains a formidable obstacle, especially in low and middle-income countries (LMICs). This study directs its focus on the scarcity of mental health resources in Kenya, specifically in Bungoma County, where community-level perspectives are frequently overlooked. The research seeks to address this gap by examining the prevalence and sociodemographic correlates of psychosis and mood disorders in the region. This investigation aligns with the World Health Organization's call for holistic mental health services.

1.2 Research Objective

This study's primary objective was to assess the prevalence and sociodemographic correlates of psychosis and mood disorders among the general population in Bungoma County, Kenya.

II. LITERATURE REVIEW

A previous descriptive cross-sectional study in Kenyan primary health centres found that 56.3% of the interviewees had one or more psychiatric disorders (Aillon et al., 2014). From the list of psychiatric disorders, depressive disorders were the highest at 26.3% and bipolar disorder prevalence was 9%. Moreover, this psychosis and mood disorders have been associated with suicide from the affected persons. At least 12.7% of the affected persons think of ending their lives. Globally, 25% of the population has mental health or psychiatric disorders (WHO, 2022). These disorders are borne from mental, neurological and substance use. Getting access to medical attention has been a long-time challenge for most of these persons with psychosis and mood disorders. It has been estimated that about 75% of the global population that suffers from psychiatric disorders hardly access specialized help. The prevalence of psychotic features in patients with major depressive disorder stands at 11.0% (Peng et al., 2023). A systematic review and meta-analysis (Aminoff et al., 2022) found the pooled lifetime prevalence of psychotic symptoms in Bipolar 1 mood disorder to be 63% and 22% in Bipolar 2 mood disorder. This was however a hospital-based study, unlike the current study that was done at the community level.

In Kenya, 45% of its population has a lifetime diagnosis of at least one of the mental disorders; anxiety disorder, 12.3% major depressive disorder (11.7%) alcohol and substance use disorder (Kwobah et al., 2017). Gender-based distribution of depression in Kenya shows that it stands at 14.6% for men and 18.7% for women as 7.6% of Kenyans have experienced a psychotic episode, 16.4% had a lifetime suicidal attempt and 1.7% have ever been diagnosed with a mental illness (Omariba, 2014; Mutiso et al., 2018). Moreover, individuals aged 60 years or less are highly associated with mental health challenges (Blackwell-Hardie, 2021). The coronavirus of the 2019 pandemic period has been found to have contributed to an increase in depression among caregivers and young children by about 34% (Angwenyi et al., 2021).

Social demographic correlates contribute to mental, neurological and substance use disorders (Cheng et al., 2016). Mental illness occurs due to a complex interplay of biological, psychological and social factors. A previous study found marriage to be a contributing factor to the development of mental illnesses. (Mina, 2019). Age as a factor

determines the risk exposure level to depressive symptoms, anxiety symptoms, and a combination of depressive and anxiety symptoms among adolescents (Zhou et al., 2020). In sub–Saharan Africa, it was established that sociodemographic correlates were significantly associated with severe mental disorders such as older persons, male sex and low socio-economic status (Kinyanda et al., 2011). Moreover, it was added that male sex, younger age, owning a business, and being unemployed significantly increased the odds of mental health problems (Tindimwebwa, Ajayi & Adeniyi, 2021). Inhabiting urban centres with lower education levels as well as high unemployment among the urbanites is associated with a higher risk of developing mental health challenges that may impact an individual and the general population at large (Bantjes et al., 2019). Single individuals, females and unemployed youths are at a higher risk of mental health problems (Benatov et al., 2022).

In Kenya, the social correlates among Kenyan youths have shown high levels of depressive symptoms (46%) and anxiety symptoms (38%) among older adolescents. Females showed more anxiety symptoms than males (Osborn et al., 2020). These previous studies have focused on specific groups in society to understand the prevalence and social correlates of mental health disorders; however, the current study looked at only three mental health conditions in the general population.

III. RESEARCH METHODOLOGY

This study was conducted in Bungoma County's general population to determine the prevalence and sociodemographic correlates of psychosis and mood disorders. To achieve this, this study used a descriptive cross-sectional design. A descriptive cross-sectional design was used to provide a snapshot of the prevalence of sociodemographic correlates of psychosis and mood disorders. There are ten sub-counties within Bungoma County - Cheptais, Kabuchai, Sirisia, Tongaren, Kimilili, Bumula, Webuye West, Webuye East, Mt Elgon and Kanduyi.

According to the Kenya population and housing census of 2019, Bungoma County had a population of 1,670,570, a land area of 3,023.9 square kilometres and a population density of 552 per square kilometre (GoK, 2019). This general population of Bungoma County formed the study population of 1,670,570. There are 370 community health units in Bungoma County distributed proportionately in sub-counties. This study used the community health units to proportionately distribute the sample size in each sub-county as follows: Cheptais 0.076, Kabuchai 0.111, Sirisia 0.086, Tongaren 0.111, Kimilili 0.100, Bumula 0.119, Webuye West 0.100, Webuye East 0.081, Mt Elgon, 0.070 and Kanduyi 0.146.

The sampling strategy used in this study was purposive for Bungoma County, stratified for all sub-counties and simple random for the general population from all sub-counties in Bungoma County. The sample size for this study was calculated using the Fisher formula (1970) [$n = (Z^2 \times pq)/e^2$; $n = (1.96^2 \times 0.45 \times 0.55)/0.05^2$) with a prevalence of 45% (Kwoba *et al*.,2017). The sample size was established as 692 respondents, with an additional 10% to cater for possible non-response resulting in a sample size of 762 respondents. The sample was distributed among the 10 sub-counties in Bungoma proportionately as per the guide of the community health units' proportions as follows: Cheptais 58, Kabuchai 41, Sirisia 32, Tongaren 41, Kimilili 37, Bumula 44, Webuye West, 37, Webuye East 30, Mt Elgon 26 and Kanduyi 54.

Data collection was done using the MINI International Neuropsychiatric Interview (MINI) for screening, a structured diagnostic psychiatric interview and structured interviews with trained research assistants. These tools were used to collect data on the prevalence of sociodemographic correlates of psychosis and mood disorder in the general population. A pretest was conducted in Matungu Sub-county which aided in testing the questionnaire's reliability and validity. The reliability score was 0.904. Data analysis was done with the aid of Statistical Package for Social Sciences (SPSS) Version 25. Descriptive analysis was done for basic variables that described the respondents to show the total number of responses and frequency of distributions. Analytically, the Chi-Square of Independence and logistical regression were used. Data was presented in frequency tables and figures.

Ethical consideration was sought for the approval to conduct this study from the County Government of Bungoma, National Commission of Science, Technology and Innovation (NACOSTI). The investigators adhered to the rules and regulations as stipulated in the Nuremberg Code, the declaration of Helsinki and NACOSTI.

IV. RESULTS & DISCUSSIONS

4.1 Sociodemographic characteristics of respondents in Bungoma County

The study was interested in understanding the sociodemographic characteristics of the respondents in terms of gender, age, marital status, education level, employment type, income levels and living arrangements. Results in Table

1 show that female respondents were the majority (55.5%), there was a fair distribution of respondents according to age groups and more than half of the respondents were married followed by about a third of the respondents who were still single. Moreover, it was revealed that 94.4% of the respondents had formal education and 33.7% of the respondents were in either part-time or full-time employment. The income level of the respondents was mostly less than Kes 5,000, only 11.3% earned an income of more than Kes 15,000. At the time of the assessment, 44.2% lived with a spouse and 21.3% lived alone.

Table 1

Sociodemographic Characteristics

Sociodemographic of respondents		**Frequency**	**Per cent**
Gender	Male	339	44.5
	Female	423	55.5
Age	18-24	161	21.1
	25-34	228	29.9
	35-44	187	24.5
	45-54	108	14.2
	55-64	46	6.0
	65 and above	32	4.2
Marital Status	Married	416	54.6
	Single	233	30.6
	Widowed	57	7.5
	Separated	36	4.7
	Divorced	20	2.6
Education Level	No formal education	43	5.6
	Primary	155	20.3
	Secondary	299	39.2
	College/vocational training	202	26.5
	University degree or higher	63	8.3
Employment type	Business or self-employed	104	13.7
	Employed	257	33.7
	Farmer	2	.3
	Homemaker	22	2.9
	Retired	20	2.6
	Unemployed (active job seeker)	254	33.3
	Student	103	13.5
Income status	None response	176	23.1
	< Kes 5000	241	31.6
	Kes 5,000 - Kes 10,000	171	22.4
	Kes 10,001 - Kes 15,000	88	11.5
	> Kes 15,000	86	11.3
Living arrangement	With Spouse	337	44.2
	With parental family	176	23.1
	Living alone	162	21.3
	With friends and relatives	75	9.8
	With children	12	1.6

The sociodemographic characteristics were essential to establish the causes of psychosis and mood disorders among the general population in Bungoma County. From the foregoing, it was important to establish the sociodemographic of the respondents that would be associated with psychosis and mood disorders among the general population of Bungoma County, Kenya. it has been noted from the previous study that there is an association between mood disorders with a higher severity and suicide risk (Baldessarini *et al*., 2019). Moreover, it was established that education, employment and age contributed to up to 47% of the mood disorder (Porcelli *et al*., 2020). This study emphasised the role of sociodemographic factors that would otherwise be predictors of psychosis and mood disorders among the general population in Bungoma County.

4.2 Prevalence of Psychotic or Mood Disorder in Bungoma County

The study shows in Figure 1 that the psychotic or mood disorder that had occurred in the general population at least once in a lifetime was 78.2%. The prevalence was calculated to help understand the potential of psychosis and or mood disorder in the general population in Bungoma County. This helps to understand the need and ways of addressing the potential mental health problems that may be of danger to the general public in Bungoma County, western Kenya region and Kenya.

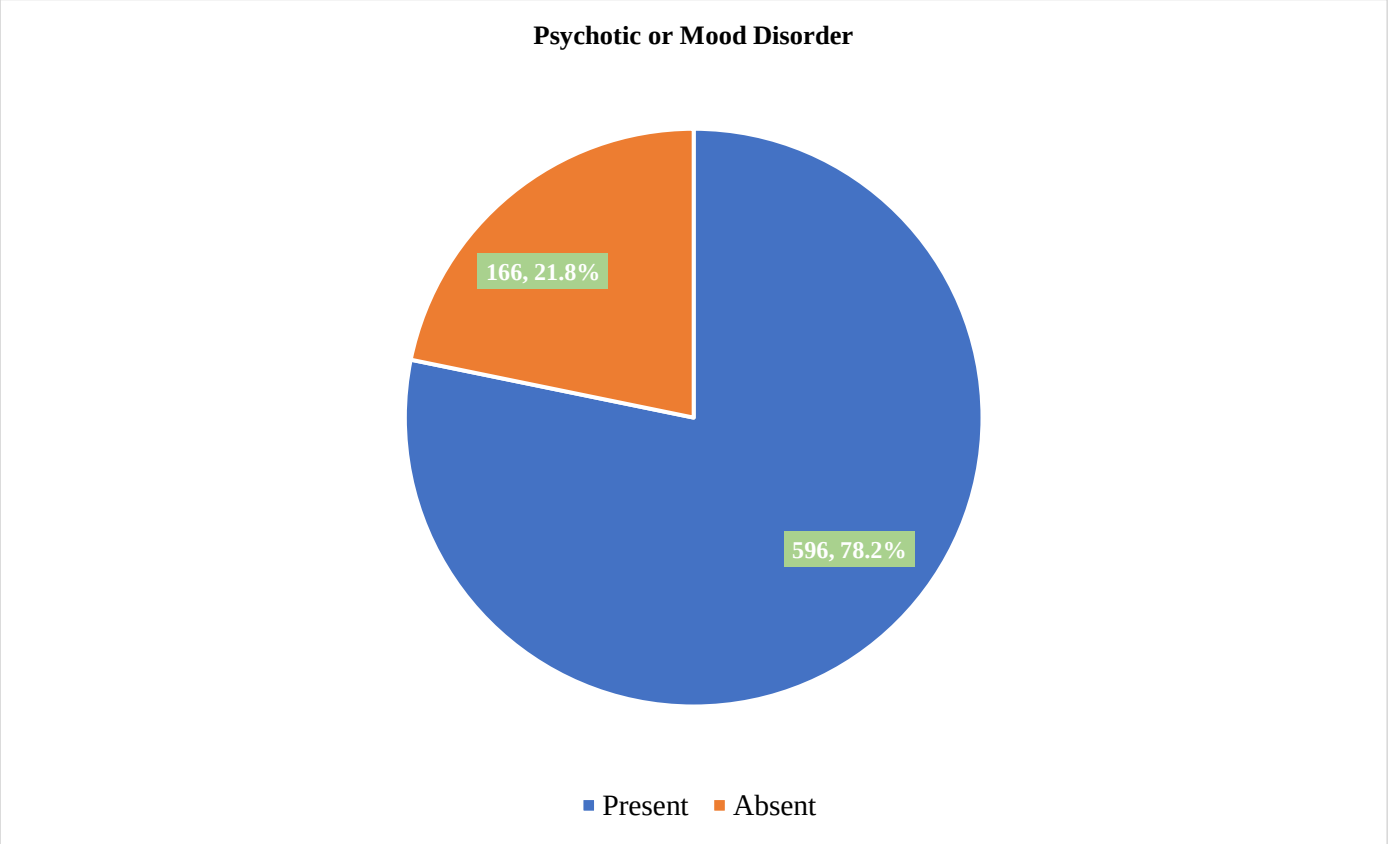

Figure 1
Psychosis or Mood Disorder

$$Prevalence\ of\ psychotic\ or\ mood\ disorder\ present = \frac{total\ psychotic\ or\ mood\ disorder}{sample\ size} \text{ x } 100\%$$

$$Prevalence\ = \frac{596}{762}\ x\ 100\% =\ 78.2\%$$

The prevalence of psychotic or mood disorder of 78.2% shows that in a lifetime at least 4 out of 5 people suffer from psychotic or mood disorder in Bungoma County, Kenya. This is pertinent in determining the extent of psychosis and mood disorders that might prove a health risk to the general public. Mental health is an emotional, psychological, and social well-being, thus, affecting personal thinking processes and actions likewise. Psychosis and mood disorders have become a global concern as mental health challenges stand at 14% (Vigo *et al*., 2016). From the results, the human way of handling stress and social welfare is explained by the prevalence of psychosis and mood disorders in a lifetime.

4.3 Prevalence of Psychosis and Mood Disorder

This study sought to establish the prevalence of depression, bipolar disorder, mood disorder with psychotic disorder, and psychotic disorder. Depression was the leading cause of psychotic disorder which was active in 73.8% of the respondents interviewed. Bipolar disorder was only active in 13.8% of the respondents. Mood disorder with psychotic features was active in 12.9% of the respondents. Psychotic disorder was active in 1.8% of the respondents.

Table 2

Prevalence of Psychosis and Mood Disorder

Psychosis and mood disorder		Frequency	Per cent
Depression	Present	562	73.8
	Absent	200	26.2
Bipolar disorder	Present	105	13.8
	Absent	657	86.2
Mood disorder with Psychotic features	Present	98	12.9
	Absent	664	87.1
Psychotic disorder	Present	14	1.8
	Absent	748	98.2

Depression had the highest prevalence in the current study at 73.8%. A previous study found high levels of depressive symptoms (46%) and anxiety symptoms (38%) (Osborn *et al*., 2020). The current study found a significantly higher prevalence of depression cases in Bungoma County of 73.8%, which was about six times the prevalence in Nandi County in 2017 (Kwobah *et al.*, 2017). Moreover, during the COVID-19 pandemic period, there was a high prevalence of depression among caregivers of young children at 34% (Angwenyi *et al*., 2021). The higher prevalence observed in the current study might be attributed to the unique economic challenges faced by Kenya during the study period, marked by high inflation rates and an increased cost of living, distinguishing it from previous periods in Kenyan history. The effects of covid 19 are still being felt in Kenya today as many people lost their livelihoods and loved ones.

The prevalence of bipolar mood disorder in this study was 13.8%, which was incongruent with a prior study conducted by Kwobah *et al*. (2017), which reported a lower prevalence of 5.2%. The disparity in prevalence rates could potentially be attributed to variations in sample sizes, with the present study encompassing a larger sample of 762 respondents compared to the earlier study's sample of 450 respondents. Additionally, temporal variation is considered a contributing factor, as the prevalence rates of mental illnesses are known to fluctuate over time.

The prevalence of psychosis in the present study was identified at 1.8%, aligning with a study (Kwobah *et al*., 2017) that reported a similar prevalence of 1%. This congruence may be attributed to the geographical proximity of Nandi County to Bungoma County, leading to similarities in population demographics. In contrast, (Mutiso *et al*., 2018) reported a notably higher prevalence of psychosis at 7.9%. The elevated prevalence in that study could be explained by the fact that samples were drawn from health facilities in Kibwezi, Makueni County, and Kangemi, Nairobi County, in contrast to the current study, which conducted a community survey.

Mood disorder with psychotic features was calculated at 12.9%. A similar study (Peng *et al*., 2023) in China found the prevalence of psychotic features in patients with major depressive disorder to be at 11.0%. This was however a hospital-based study, unlike the current study that was done at the community level. A systematic review and meta-analysis (Aminoff *et al*.,2022) found the pooled lifetime prevalence of psychotic symptoms in Bipolar 1 mood disorder to be 63% and 22% in Bipolar 2 mood disorder. These figures were much higher than those in our study. The differences could be because of methodological differences as the earlier study was a systematic review while the current study took a cross-sectional design.

4.4 Association of Psychotic or Mood Disorder and Sociodemographic Characteristics of Respondents

The study sought to establish the relationship between psychotic or mood disorder with sociodemographic characteristics. Table 3 illustrates the findings.

Table 3

Association of Psychotic or Mood Disorder and Sociodemographic Characteristics

Sociodemographic		Psychotic or mood disorders		Total	OR	95 CI		p-value
		Present	Absent			Lower	Upper	
Gender	Male	304	67	372	1.37	1.881	2.131	0.043
	Female	300	91	390				
Age	< 35	316	71	387	1.420	0.924	2.183	0.092
	>= 35	284	91	375				
Marital Status	In Marriage	329	92	421	0.964	1.329	2.877	0.003
	Not in marriage	269	72	341				
Education	Informal	35	12	47	0.786	0.342	1.810	0.160
	Formal	562	154	715				
Employment	Business/employed	289	76	364	1.081	1.106	2.656	0.028
	Unemployed	310	88	398				
Income	< Kes 5,000	264	54	318	1.686	1.019	2.788	0.024
	≥ Kes 5,000	330	114	444				
Living arrangement	Alone	142	26	168	1.641	0.930	2.897	0.180
	With family/relatives/friends	457	137	594				

*** OR = Odds Ratio; CI = Confidence Interval at 95%; p value = significance at α of 0.05

The social demographic characteristics of the respondents were important in determining their correlates with mental health problems among the general population in Bungoma County. The findings in Table 3 show that gender with a p-value of 0.043, marital status with a p-value of 0.003, employment status with a p-value of 0.028 and income with a p-value of 0.024 were significant predictors of psychotic or mood disorder among the general population in Bungoma County. This correlates with the previous findings which stated that a person not in marriage, is of female sex, and or is unemployed especially a youth had a higher risk of mental health challenges (Benatov et al., 2022).

In the latest inquiry, it was revealed that males in Bungoma County had 1.37 times higher odds of experiencing psychotic or mood disorders compared to females. This aligns with findings from a prior study (Kinyanda et al., 2011), which also identified a connection between the male sex and psychiatric disorders. The observed gender disparity may be attributed to cultural expectations that assign men the roles of household heads and primary breadwinners, potentially contributing to increased stress and mental health challenges among the male population.

In the present study, individuals not in a marital relationship had odds 0.964 times lower of experiencing psychotic or mood disorders compared to those in marriage, presenting a contrast to the findings of an earlier study (Mina et al., 2019) associating marriage with an elevated risk of mental illness. In the current investigation, individuals in marriage were less prone to suffering from psychotic or mood disorders, potentially due to the supportive systems inherent in marital relationships. Similarly, a South African study (Herman et al., 2009) supported the current findings, concluding that individuals who were separated, widowed, or divorced faced an increased risk of any mental disorder and more severe mental disorders compared to their married counterparts. Previous research consistently observed that married individuals generally enjoy higher levels of emotional and psychological well-being in comparison to those who are single, divorced, or cohabiting (Demey et al., 2014; Perelli-Harris & Styrc, 2018).

Income was identified as a significant factor contributing to psychotic or mood disorders. Individuals earning less than Kes 5,000 had odds 1.686 times higher of suffering from psychotic or mood disorders compared to those earning more than Kes 5,000. This study's finding is similar to previous studies that found a low socioeconomic status to be associated with the development of a mental illness(Kwobah et al., 2017, Kinyanda et al., 2011). This association may be attributed to the fact that many mental health issues stem from pressing needs that individuals find challenging to meet, leading to the development of psychosis and/or mood disorders (Sareen et al., 2011).

The correlation between employment status and psychotic or mood disorders revealed that individuals in employment or business roles had 1.810 times greater odds of experiencing such disorders compared to their unemployed counterparts. This aligns with findings from a previous study (Martin *et al.,* 2016), which highlighted the influence of work

culture factors such as workload, job demands, interpersonal relationships, job insecurity, and work-life balance on a person's mental well-being. One potential explanation for this association is that employed individuals might face an elevated risk of mental disorders due to the inherent challenges associated with their work, coupled with the added strain of being primary breadwinners. Interestingly, this finding diverges from a prior study conducted in Kenya (Kwobah *et al*., 2017), which failed to establish a significant association between employment status and mental illness. It's crucial to note that our study did not specify the nature of employment, suggesting the need for further investigations into this area to yield more conclusive results. Understanding the complex dynamics of various employment contexts and their impact on mental health can contribute to the development of tailored interventions and support strategies for individuals in diverse occupational settings.

IV. CONCLUSIONS & RECOMMENDATIONS

This study sheds light on the substantial prevalence of mental health conditions, particularly depression and bipolar mood disorder, within the community in Bungoma County, Kenya. It emphasizes the urgent need for targeted mental health interventions and community-driven strategies to address the treatment deficit in the region. Marital status, employment status, and income emerged as significant sociodemographic correlates of psychotic or mood disorders, highlighting the complex interplay of psychosocial factors in mental health outcomes. Notably, the study underscores the importance of considering the local context and economic challenges in understanding mental health prevalence rates. Addressing these challenges requires a comprehensive approach that integrates mental health services into primary care, aligning with the World Health Organization's call for holistic and community-based mental health services. Further research, especially in the context of employment dynamics and income disparities, is warranted to develop tailored interventions that effectively address the mental health needs of diverse populations in the region.

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