

## Prevalence of Common Mental Disorders and Associated Factors among Adults in Kombolcha Town, Northeast Ethiopia

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### Abstract

**Introduction:** Mental illness is becoming an emerging issue in Ethiopia. In view of this, Ethiopian ministry of health formulated mental health strategic plan from 2012/13-2015/16. However, there is scarcity of information, especially from small towns, which assist policy maker's efforts in reforming mental health care. Therefore, the aim of this study was to assess the prevalence of common mental disorders and factors associated with them.

**Methods:** Community based cross sectional study was undertaken from March to April 2013 in Kombolcha town. A total of 526 residents were selected using two-stage sampling technique. Of these, 512 were participated in this study. Self-Reporting Questionnaire (SRQ) was used to determine the prevalence of common mental disorders. Univariate, bivariate and multivariate analyses were considered.

**Results:** The prevalence of common mental disorders was found to be 32.4% (95% CI: 30.3-34.5%). Female sex (AOR=1.71 95% CI: 1.01-2.89), no formal education (AOR=6.16 95% CI: 2.34-16.23) and low level of education (first cycle primary school (AOR=2.23 95% CI: 1.15-4.33) and second cycle primary school (AOR=2.01 95% CI: 1.01-4.38)) were significantly associated with common mental disorders. Having small family size (AOR=2.93 95% CI: 1.37-6.25), family history of mental illness (AOR=3.92 95% CI: 2.05-7.51), living with chronic illness (AOR= 2.61 95% CI: 1.45-4.68) and active smoking (AOR=5.99 95% CI: 2.45-14.68) were significantly associated with common mental disorders. Experiencing one stressful life event (AOR=4.77 95% CI: 2.37-9.62) and two or more stressful life events (AOR=10.55 95% CI: 5.63-19.77) had significant association with common mental disorders. High level of emotional support reduces the likelihood of occurrence of common mental disorders by half.

**Conclusion:** This study had demonstrated that common mental disorders are major public health problems. Female sex, low educational status, small family size, family history of mental illness, smoking, chronic illness, lack of emotional support and stressful life events are independent predictors. To improve the mental status of the community; there is a need of stress management practice and screening mechanism at the primary health care level. Moreover, improving educational status, women's social position and social network of the community is beneficial.

**Keywords:** Common mental disorders; Self reporting questionnaire; Ethiopia

### Introduction

Common mental disorders include Anxiety, Depression and Somatoform disorders and they are characterized by symptoms such as insomnia, fatigue, irritability, forgetfulness, difficulty in concentrating and somatic complaints [1]. Common mental disorders are the most prevalent mental disorders in the world. Although they are not as severe as psychotic disorders, they can pose a significant public health problem because of their high prevalence and serious effects on personal wellbeing, family, work and use of health services [2,3].

In Africa where mortality is still mostly the result of infectious diseases and malnutrition, the morbidity and disablement due to mental illness receive very little attention from the government. Studies conducted in Kenya and South Africa reported that the prevalence of common mental disorders found to be 10.8% and 34.9% respectively [4-6]. In Ethiopia, mental disorder is the leading non-communicable disorder in terms of burden. Among every five persons, one will be affected by mental disorders at some stage of his or her life [7,8]. Community based studies conducted using the same instrument reported that the prevalence of common mental disorders in Butajira, Addis Ababa and Hadiya district was 17.4%, 11.7% and 11.2% respectively [9-11].

No group is immune to mental disorders but the risk is higher

among the poor, homeless, the unemployed, persons with low education, victims of violence, migrants and refugees, indigenous populations, children and adolescents, abused women and the neglected elderly [3,12]. Moreover, poor mental health underlies risk behaviors, including smoking, alcohol and drug misuse like khat and lack of exercise [13]. Study abroad showed that CMDs were associated with stress related to family, work, social isolation, chronic physical illness, and lifestyle pressures [2]. Aspects of social capital, like trust, social support and social networks, are also important determinants of the mental health of individuals [12].

While these facts remain about common mental disorders and their contribution to the global burden of diseases, the attention given to mental health is very low across the globe. This is even more so in low-income countries like Ethiopia [14]. In view of this, Ethiopian

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ministry of health formulated mental health strategic plan from 2012/13-2015/16 [7]. To build evidence for mental health promotion, information is necessary. In Ethiopia, there is scarcity of information, especially from small towns, which assist policy maker's efforts in reforming mental health care. This study also used stressful life events and social support, since most previous Ethiopian studies were focused on socio-demographic and substance use correlates. Therefore, the aim of this study was to determine the prevalence of common mental disorders and to identify factors associated with them.

## Methods

### Study design and study settings:

Community based cross sectional study was used in Kombolcha town from March to April 2013. The Kombolcha town is located 376 km from the capital city Addis Ababa in the South Wollo Zone of the Amhara Region. The town is divided in to 11 administrative units (kebeles), 5 urban and 6 rural, and has an estimated population size of 104,695.

**Source and study population:** The source populations were adults ( $\geq 15$  years of age) who live in Kombolcha town. Adults who were selected using two stage sampling technique were the study population of this study. Permanent residents (live in the study area for 6 months or more) were included. Individuals who were seriously ill (unable to give the required information) and those who were unable to hear were excluded.

**Sampling:** Taking prevalence of CMDs ranging from 11.7% conducted in Addis Ababa to 19.3% in Haromaya [12,14], this study considered 19.3% to obtain the maximum sample size at 95 % certainty and  $\pm 5\%$  margin of error. Considering the design effect and 10% non-response the final sample size was found to be 526. A two-stage sampling technique was used to select study populations. At stage one, from the 5 rural kebeles two and from 6 urban kebeles three were selected randomly using lottery method. At stage two, individual households were selected using a systematic sampling technique with sampling interval of 10. The samples were allocated to each kebele proportionally based on the household size of the kebeles. In selected households where more than one eligible adult were found, a lottery method was used to select one.

**Instruments:** Because of high illiteracy rate in Ethiopia interviewer administered questionnaire was employed. The questionnaire has six parts, the first containing socio-demographic information (age, sex, residence, marital status, occupational status, educational status, religion and family size). The second part of the questionnaire was a Self-Reporting Questionnaire (SRQ<sub>20</sub>). Self-reporting questionnaire (SRQ) was used to classify whether common mental disorder was present or not. Because the detecting power of the four psychotic items is regarded as unreliable, in this study SRQ with only 20 items was used and referred to as the SRQ-20 [13]. The validity study of SRQ<sub>20</sub> by Youngman [15] showed that specificity (83%) and sensitivity (89.5%) were optimum at 7/8 cutoff points.

Third part of the questionnaire was asking about behavioral factors, substance use and history of leisure time physical exercise. The fourth part of the questionnaire consisted of presence of chronic disease. The fifth part was emotional and practical support assessment using an adapted shortened version of the Social Support Questionnaire (SSQ). The measure enquired about each of the five sources of support (partner, mother, father, best friend and others significant (religious leaders, health professionals....)) and responses recorded on a Likert

scale of 'never = 0', 'sometimes = 1' and 'always = 2'. Finally, stressful life events were asked by using an adapted version of List of threatening experiences (LTE) questionnaire. It is a 12 items instrument measuring common life events that tend to be threatening.

**Data collection:** The questionnaire was pre-tested on 40 individuals from part of the town which was not included in the study. Three supervisors and 20 data collectors were employed and trained for one day on the questionnaire and the processes of data collection and submission on due time. And interview was conducted in private setting. Interviewers were supervised at each site, regular meetings were held between the data collectors and the principal investigator. Two additional visits were made if a respondent was not found in the first visit. The collected data were reviewed and checked for completeness before data entry.

**Operational definitions:** In this study, adults who were found to have seven or more symptoms of the 20 SRQ questions in the last 4 weeks were considered as having common mental disorders. This cutoff was based on reports from the validation study of SRQ20 conducted by Youngman [15]. Adults categorized as current substance user when they are using specified substance currently. When individuals used specified substance at least once in their life time, they were categorized as ever user. Those who were not working at the time of study; house wife or pensioner or unemployed were categorized as unemployed. Individuals who had at least one of six chronic diseases (HIV/AIDS, hypertension, diabetes, any cancer, asthma, and heart disease) were grouped as single variable "Presence of chronic diseases". These chronic illnesses were selected based on association study from Brazil [16]. Individuals who had at least one or more stressful life events (close family member died, divorce, serious illness or injury in the family member etc.....) in the last four weeks were grouped as single variable "Presence of stressful life events". Regarding social support, minimum and maximum scale in the range of 0-2 was established for each of the five sources of support, and an overall scoring range of 0-10 across sources of support for both practical support and emotional support were done. And the mean score of three was used to categorize the level of social support as high or low.

**Data processing and analysis:** Data was checked, coded and entered to Epi-info version 3.5.1 and was exported to SPSS version 16.0 for analysis. Univariate, bivariate and multivariate analyses were considered. All variables in bivariate analysis were inserted in to the multiple logistic regression models and backward stepwise likelihood ratio was used to identify independent predictors. Significance was considered at OR and 95% CI were used to show associations between the outcome and predictor variables.

**Ethical consideration:** Ethical clearance was obtained from Institutional Review Board of university of Gondar. Permission was also obtained from Kombolcha town health office. Written consent was obtained for those study participants of 18 years of age and above and parental permission and child assent was obtained for those study participants from 15 to 18 years of age. Privacy and confidentiality of information given by each respondent were kept properly and name was not recorded instead code was used. Two study subjects were found seriously mentally ill during the data collection period and linked to Kombolcha health center.

## Results

### Characteristics of respondents

Ten questionnaires found to be incomplete and excluded from the

analysis. Two individuals were not found at home on three consecutive visits. Two individuals were found severely mentally ill. Therefore the non-response rate of this study was 14(2.66%). Out of 512 respondents, majority 291 (56.8 %) were females. About 319 (62.3%) of the respondents were below 35 years of age. The mean ( $\pm$  SD) age of respondents was found to be 32.57 ( $\pm$  12.02) year. Almost half of respondents 258 (50.4%) were married. More than half of respondents 299 (58.4%) had 3-5 family size. Seventy (13.7%) of the respondents had family history of mental illness. Out of the total 512 study subjects 227 (44.3 %) were current khatusers. Ninety nine (19.3%) of the respondents were current alcohol drinkers. About 41(8.0%) of the respondents were current smokers. Eighty eight (17.2%) of the respondents reported at least one chronic illness. Among study participants 218 (42.6%) reported two or more stressful life events, 110 (21.5%) reported one stressful life events and the remaining 184 (35.9%) reported no stressful life events in the last four weeks (Table 1).

Variables	CMD		Total
	Yes	No	
	Frequency (%)	Frequency (%)	Frequency (%)
Sex			
Male	70(31.7)	151(68.3)	221(43.2)
Female	96(33)	105(67)	291(56.8)
Age			
15-24	48(33.3)	96(66.7)	144 (28.1)
25-34	60(34.3)	115(65.7)	175(34.2)
35-44	27(25.2)	80(74.8)	107(20.9)
45-54	16(32.7)	33(67.3)	49(9.6)
55+	15(40.5)	22(59.5)	37(7.3)
Residence			
Urban	136(32.2)	286(67.8)	422(82.4)
Rural	30(33.3)	60(66.7)	90(17.6)
Marital status			
Married	84(32.6)	174(67.4)	258(50.4)
Never married	46(31.3)	101(68.7)	147(28.7)
Divorced	15(26.8)	41(73.2)	56(10.9)
Widowed	21(41.2)	30(58.7)	51(10)
Religion			
Muslim	110(33.2)	221(66.8)	331(64.7)
Orthodox	51(31.3)	112(68.7)	163(31.8)
Protestant or catholic	5(27.8)	13(72.2)	18(3.5)
Educational status			
No formal education	16(48.5)	17(51.5)	33(6.4)
Primary (grade 1-8th)	75(35.05)	139(64.95)	214(41.8)
Secondary and preparatory	45(34.6)	85(65.4)	130(25.4)
Higher education	30(22.2)	105(77.8)	135(26.4)
Average monthly income			
<400 birr	49(37.1)	83(62.9)	132(25.8)
401-800 birr	45(32.8)	92(67.2)	137(26.8)
801-1500 birr	37(28.5)	93(71.5)	130 (25.4)
>1501 birr	35(31.0)	78(69.0)	113(22.1)
Employment status			
Employed	64(29.8)	151(70.2)	215(42.0)
Unemployed	59(30.3)	136(69.7)	195(38.1)
Casual laborer	43(42.2)	59(57.8)	102(19.9)
Family size			
1-2	46(33.6)	91(66.4)	137(26.8)
3-5	108(36.1)	191(63.9)	299(58.4)
6+	12(15.8)	64(84.2)	76(14.8)
Family history of mental illness			
Yes	46(65.7)	24(34.3)	70(13.7)
No	120(27.1)	321(72.9)	441(86.3)
Khat users			
Users	89(39.2)	138(60.8)	227(44.3)
Non-users	89(31.2)	196(68.8)	285(55.7)

Frequency of khat use			
Daily users	18(36.0)	32(64.0)	50(9.7)
1 or more per week	45(33.6)	89(66.4)	134(26.2)
Occasionally	14(32.6)	29(67.4)	43(8.4)
Non users	89(31.2)	196(68.8)	285(55.7)
Alcohol users			
Users	42(42.4)	57(57.6)	99(19.3)
Non users	124(30.0)	413(70.0)	413(80.7)
Frequency of alcohol use			
Daily users	10(38.5)	16(61.5)	26(5.1)
1 or more per week	16(44.4)	20(55.6)	36(7.0)
Occasionally	8(21.6)	29(78.4)	37(7.2)
Non users	132(32.0)	181(68.0)	413(80.7)
Smoking			
Smokers	30(73.2)	11(26.8)	41(8.0)
Non smokers	136(28.9)	335(71.1)	471(92.0)
Leisure time physical exercise			
Yes	24(32.0)	51(68.0)	75(14.6)
No	142(32.5)	295(67.5)	437(85.4)
Presence of chronic illness			
Yes	47(53.4)	41(46.6)	88(17.2)
No	119(28.1)	304(71.9)	424(82.8)
Emotional support			
High	53(26.9)	144(73.1)	197(38.5)
Low	113(35.9)	202(64.1)	315(61.5)
Practical support			
High	55(26.4)	153(73.6)	208(40.6)
Low	111(36.5)	193(63.5)	304(59.4)
Stressful life events			
None	16(8.7)	168(91.3)	184(35.9)
One	33(30.0)	77(70.0)	110(21.5)
Two or more	117(53.7)	101(46.3)	218(42.6)

**Table 1:** Prevalence of CMD across socio demographic factors of respondents in Kombolcha town, Northeast Ethiopia, 2013 [n=512].

## Prevalence of Common Mental Disorders

The distribution of SRQ20 showed a median of 3.0 and standard deviation of  $\pm$  4.76. Two hundred ninety nine (58.4%) of them reported less than five symptoms, 128 (25%) of them reported from five up to nine symptoms, 59 (11.5%) of them reported from 10 up to 14 symptoms and the remaining 26 (5.1%) of them reported 15 or more of the 20 SRQ symptoms (Figure 1). Considering seven as a cutoff point, about 166 (32.4%) of the respondents with 95% confidence interval (30.3-34.5%) scored above the cutoff point indicating presence of common mental disorders.

More women (33%) than men, rural residents (33.3%) than urban residents, current khat chewers (39.2%) than non-chewers, current alcohol drinkers (42.2%) than non-drinkers, smokers (73.2%) than non-smokers had common mental disorders. The prevalence of common mental disorders was found to be 40.5% in 55 and above age groups, 41.2% in widowed, 48.5% in those who had no formal education, 37.1% in those who had less than 400 Eth birr monthly income, 42.2% in casual laborers and 36% in daily users of khat. Of those who had family history of mental illness nearly two third of them had common mental disorders. Among respondents who reported at least one chronic illness, more than half (53.4%) of them had common mental disorders. Among respondents, 113 (35.9%) of who had low level of emotional support, 111 (36.5%) of who had low level of practical support and 117 (53.7%) of who reported two or more stressful life events had common mental disorders (Table 2).

## Factors Associated With Common Mental Disorders

In multivariate analysis; female sex, no formal education or low educational status, small family size, family history of mental illness, active smoking, presence of chronic illness, low emotional support, and presence of any stressful life events were significantly associated with CMDs.

The odds of CMDs was 1.71 times (CI: 1.01-2.89) higher in women. No formal education (AOR=6.16 CI: 2.34-16.23) and low educational status (1-4 school year (AOR=2.23 CI: 1.15-4.33) and 5-8 school year (AOR=2.01 CI: 1.01-4.38)) had significant association compared to

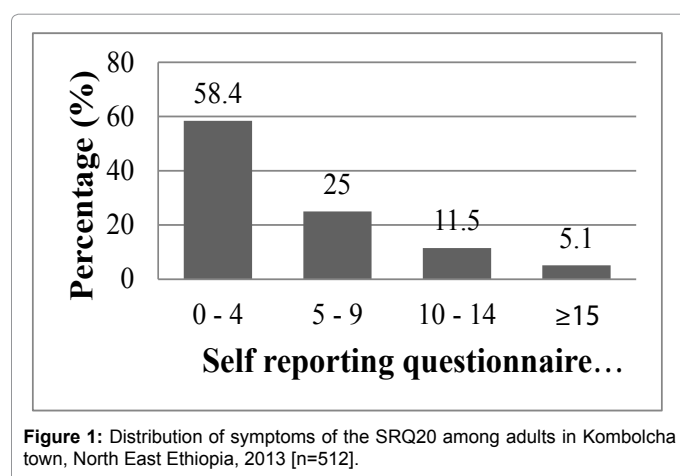
those who have certificate and above. Family history of mental illness (AOR=3.92 CI: 2.05-7.51), living with chronic illness (AOR= 2.61 CI: 1.45-4.68) and active smoking (AOR=5.99 CI: 2.45-14.68) were significantly associated with common mental disorders as compared to their counterparts. Experiencing one stressful life event (AOR=4.77 CI: 2.37-9.62) and two or more stressful life events (AOR=10.55 CI: 5.63-19.77) were significantly associated with common mental disorders. However, the likelihood of having CMDs among individuals who had high level of emotional support from their closed ones was nearly 50% less compared to individuals who had low level of emotional support (Table 2).

## Discussion

The prevalence of CMDs was found to be consistent with prevalence study done using the same instrument and cutoff point in urban community in Brazil which was 29.6% [15] and in rural and urban community in South Africa which was 34.9% [8]. Epidemiological investigations in many developing countries have attributed the high rates of common mental disorders to factors such as discrimination and living through a period of rapid and unpredictable social change [13]. This could explain the difference with global estimates of common mental disorders.

This study demonstrated that there was higher prevalence of common mental disorders among women than men. This finding agrees with the findings in Addis Ababa and Butajira [14,17] and many other studies in the world [13,16]. The elevated risk for CMDs could be explained by considerable level of stress and suffering faced by women due to heavier burden of social and household responsibility, forced marriages, limitation of activities outside their home, fewer opportunities for them in education and employment, and greater risk of domestic violence. It also explained by hormonal changes during menstruation in women [10]. Common mental disorders were higher among the respondents who didn't attend formal education or attended to only grade eight. This finding was in line with studies conducted in Addis Ababa and Butajira [14,17] and global studies [13,16]. The study showed that illiteracy or poor education is a consistent risk factor for common mental disorders. Ludermitr and MeloFilho found that individuals with up to four years of education had 2.84 times more CMDs than those with 11 years of education or more. The relationship between low school level and mental disorders may be explained by a number of pathways: these include malnutrition, which impairs intellectual development, leading to poor educational performance and poor psychosocial development. The relationship with no schooling could be explained by a having no formal education prevents access to most professional jobs, increases vulnerability and insecurity and contributes to a persistently low social capital [13].

A small family size was associated with mental disorders. A similar finding was reported in Addis Ababa and Butajira study. This could be explained by the supportive structure of large or extended families might protect individuals from mental disorders. However, in this study the strong association was to a great extent explained by the fact that individuals who were living with chronic illness or life threatening events i.e. variables which had higher association with mental disorders were more likely to live in small families. Family history of mental illness was strongly associated with common mental disorders, which is in line with Addis Ababa and Butajira study and reviewed literatures [14,17]. This could be explained by genetic predisposition and living conditions within the families. Common risk factors hypothesis could explain the association of CMDs with family history of psychotic disorders [18].



**Figure 1:** Distribution of symptoms of the SRQ20 among adults in Kombolcha town, North East Ethiopia, 2013 [n=512].

Variables	CMD		Crude OR with 95% CI	Adjusted OR with 95% CI
	Yes	No		
Sex				
Male	70	151	1.00	1.00
Female	96	195	1.062 (0.73,1.544)	1.71 (1.01, 2.89)*
Educational status				
No formal education	16	17	3.29 (1.49, 7.29)	6.16 (2.34, 16.23)**
Primary (1-4th)	42	83	1.77 (1.02, 3.07)	2.23 (1.15, 4.33)*
Primary (5-8th)	33	56	2.06 (1.14, 3.73)	2.10 (1.01, 4.38)*
20 and preparatory	45	85	1.85 (1.08, 3.19)	1.89 (0.97, 3.68)
Higher education	30	105	1.00	1.00
Family size				
1-2	46	91	2.7 (1.32, 5.5)	2.18(0.96, 4.92)
3-5	108	191	3.02 (1.56, 5.84)	2.93(1.37, 6.25)*
6+	12	64	1.00	1.00
Family history of mental illness				
Yes	46	24	5.14 (3.01, 8.79)	3.92(2.05, 7.51)**
No	120	322	1.00	1.00
Smokers				
Smokers	30	11	6.71 (3.27,13.8)	5.99(2.45, 14.68)**
Non-smokers	136	335	1.00	1.00
Chronic illness				
Yes	47	41	2.93 (1.83,4.68)	2.61 (1.45, 4.68)**
No	119	304	1.00	1.00
Stressful life events				
None	16	168	1.00	1.00
1	33	77	4.5(2.34,8.67)	4.77(2.37, 9.62)**
2 or more	117	101	12.2(6.83,21.7)	10.55(5.63, 19.77)**
Emotional support				
High support	53	144	0.66(0.45,0.97)	0.49 (0.29, 0.81)*
Low support	113	202	1.00	1.00

**Table 2:** Binary logistic regression output of associated factors in Kombolcha town, Northeast Ethiopia, 2013 Note: 1.00=Reference \*\*=p<0.001\* =p<0.05.



Caring for the mentally ill family member may produce additional stress that predispose to the occurrence of common mental disorders.

Smoking was positively associated with the prevalence of CMDs. The perceived role of smoking in relieving stress and as a coping mechanism, in aiding low self-esteem and social mixing, and in dealing with boredom is the first hypothesis which might explain their association. The other hypothesis related to the effect of tobacco use including: barriers to community involvement, accommodation difficulties, stigma and shame, the negative effects on appearance and other people, stained fingers and teeth, the smell of tobacco which were additional stress on the individual [19,20].

Living with one or more chronic illness had positive association with CMDs. This is in line with study conducted in Brazil [16]. This could be explained by Elderly people who were living with chronic illness may suffer from chronic insomnia, elder abuse, personal loss and bereavement [3]. Some studies also found anxiety disorders to be associated with high utilization of medical services. Increased frequency of medical attention, and possibly increased somatic complaints, may lead to increased detection of chronic illness in individuals with anxiety disorders [15]. With regard to HIV infection, Prince and colleagues suggest that likely mechanisms underlying the association include “the acute trauma of the diagnosis; the difficulty of living with the illness; the long-term threat of decline and shortened life expectancy; necessary lifestyle changes; complicated therapeutic regimens; aversive symptoms such as pain; and stigma, which can lead to guilt, loss of social support, or breakdown of key relationships”, all of which were typical of HIV infection [1].

High level of emotional support from close persons was found to be protective against common mental disorders. Evidence showed that the impact of social support on mental health can occur through two mechanisms: either as a main effect influence in which social support have a beneficial effect on mental health regardless of whether or not the individuals are under stress, or as a stress buffer, in which social support improve the wellbeing of those under stress by acting as a buffer or moderator of that stress [10]. There was strong association between stressful life events and common mental disorders. Study abroad showed that CMDs were associated with stress related to family, work, social isolation, chronic physical illness, and lifestyle pressures [1]. This could be explained by acquired abnormalities in the stress response and stress induced structural change in brain regions which may induce multi-component path-physiology associated with CMDs. Moreover, study also showed that the higher the number of major life events the greater the potential stress elicited and the higher the probability of the occurrence of CMDs [15].

Among the limitation of this study, the fact related to the cross-sectional design used, which simultaneously evaluate variables of the effect of interest and their associated factors, should be emphasized. Thus, it is not possible to identify whether CMDs influenced the associated factors or vice-versa. The other limitation of this study might be social desirability bias due to the sensitiveness of the issue being investigated. There were also limitations to use SRQ; among these the instrument is only screening instrument (do no more than express the likelihood of mental disorders) and the limitation in the ability to assess every mental disorder as described in ICD-10. Despite these limitations, use of SRQ instrument which is a worldwide accepted, standardized well adopted in our country and well valid instrument to measure common mental disorders, is the major strength of this study. The inclusion of rural kebeles which increase representativeness of the study population and use of social support and stressful life events as

factors, since most previous studies didn't used them is also the other strength of this study.

## Conclusion

This study demonstrated that common mental disorders are major public health problems in Kombolcha town. Common mental disorders are found to be more common in women, those with low educational status, those with small family size and those with family history of mental illness, smokers, those with one or more chronic illness and those with one or more stressful life event. High level of emotional support from close persons protect from common mental disorders. To improve the mental status of the community; there is a need to stress management practice and screening mechanism at the primary health care level. And there is a need also improve educational status, women's social position and social network of the community. Second stage assessment is also recommended to understand the overall burden of mental disorders specifically.

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