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Depressive Disorders among Workers in the Selected Hotels in the Capital City of Kenya: A Cross Sectional Study on Prevalence and Correlates

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ABSTRACT
Background: Depressive symptoms are potential outcomes of poorly functioning and demanding work environments. Such symptoms are frequent and cause considerable suffering for the employees as well as financial loss for the employers. As a major hub of tourist attraction and the current consistent terrorism threats, workers in hotel industries in Nairobi Kenya have significant pressure not only to deliver quality services but also are faced with declining tourist flow. Accordingly, studies of psychosocial working conditions and depressive symptoms in this industry are valuable. **Objective**: This study measured the levels of depressive disorders and associated correlates among workers in selected luxury hotel industries in Nairobi Kenya. **Methods:** This cross-sectional study, consented and enrolled 360 workers in selected hotels in Nairobi. A sociodemographic based questionnaire and a mental health screening tool; Patient Health Questionnaire (PHQ-9) were used to gather information relevant to this study. The data was analyzed for central tendencies as well as for any associations and correlations. **Results:** The mean age of the 360 respondents was 28.4 (SD± 4.98) years. The majority 84.2% were aged 20 to 30 years, 55.3% had secondary level education, 35.3% worked as waiters. Using the PHQ-9, 9.2% had major depressive disorder while 10% were categorized as other depressive disorders. In multivariate analysis, major depressive disorders were independently associated with staying in temporary housing (OR 0.1, 95% CI 0.03 to 0.6) and those whose adult household population was between 1 to 3 persons (OR 2.7, 95% CI 1.03 to 7). The other depressive disorders were independently associated with working in low end hotels (OR 5.3, 95% CI 1.2 to 22.7); having primary education level (OR 3.9, 95% CI 1.1 to 15.9); staying in temporary houses (OR 0.3, 95% CI 0.1 to 0.8); and with monthly income of 10,000 to 50,000 KSh (100 to 500USD). The Key informant interviews identified poor remuneration, management disregard to employees input, negative attitude from work and colleagues, hostile treatment by clients, employers and colleagues, long working hours, poor diet, domestic problems, political instabilities, pressure from family members and high standards of living as some of the factors contributing to work related depression. **Conclusion:** Cumulatively, significantly high proportion of hotel workers suffer from depressive disorders in Nairobi. If correlates such as socio-demographic and economic, influenced by working conditions are not tackled, workers in hotel industries in Nairobi are poised to record one of the highest levels of depressive disorders in Kenya.
Keywords: Depressive disorders, Workers in selected hotels, Nairobi Kenya.

BACKGROUND

Work and it environment plays a significant role of mental soundness, health and of the wellbeing of individuals and societies [Waddell and Burton, 2006]. To a greater extent, majority of population, remunerative employment influences their self-worth and social status, and contributes to material well-being and social participation [Black, 2008]. The evidence about the negative impact of certain work environments for depressive symptoms is accumulating [Theorell et al., 2015]. Mental health disorders account for 13–14% of the world's total burden from ill-health [Mental Health Foundation, 2015]. In Canada, over 10 % of the labour force suffers from at least one mental health disorder [Dewa et al., 2012], India is estimated to have 10–20 persons out of 1,000 suffer from severe mental illness [Rao and Ramesh, 2015]. Mental health in Kenya is generally a neglected area; with less than 1 percent of all health care spending in Kenya is devoted to mental [Othieno et al., 2015]. Reported prevalence of clinical depression (severe and moderate depressive symptoms range from 6% among Kenyan youths [Othieno et al., 2015] to 50% of Physically Challenged Persons Living with HIV/AIDS have [Aboge et al., 2015].

The mental health disorder has been shown to affect work participation [Adler et al., 2006] resulting in significant costs for society [Tomonaga et al., 2013]. Workplace pressure is a common occupational stressor [Einarsen et al., 2011]. The adverse effects of workplace pressure and bullying on victims' psychological health span from mild anxiety and depression to severe posttraumatic stress symptoms [Mikkelsen and Einarsen, 2010; Nielsen and Einarsen, 2012; Nielsen et al., 2014]. Similarly, workplace pressure also has a detrimental impact on organizational outcomes, such as job satisfaction, organizational commitment, and intention to leave [Hoel et al., 2011; Nielsen and Einarsen, 2012].

Hostel industry is a fast-paced, stressful industry which often includes working long and irregular hours. The high-pressure of the industry can present a number of psychological risks ranging from physical and psychological fatigue, to stress, and increased alcohol and drug use, all of which can have a debilitating effect on employees' health and wellbeing. This study assessed the prevalence and correlates of depressive disorder among luxury hotel workers in the capital city of Kenya.

METHODS

Study design and Settings

This cross section study conducted from 2015 to 2016, recruited consenting hotel workers of in Nairobi Kenya. Formula for estimating the population proportion with specified relative precision described by Lemeshow *et al.* [1990] was used to determine the number of participants in this study. Setting α at 0.05, and a depression rate among hotel workers of 50%, a maximum sample of 384 were recruited to achieve 0.90 power.

Data collection

Self-administered questionnaires

Self-administered questionnaires with semi-structured questions were used to collect relevant information related to substance abuse and associated factors from 152 consenting youths.

In-depth interviews

In-depth interviews (IDIs) were conducted to confirm and clarify any pending or new issues described in the structured questionnaire. In-depth interviews have been shown to provide a valuable foundation for a broader understanding of contextual matters relevant to the issues being explored [Bernard, 1994]. Randomly representative IDI were identified consented and interviewed at a place and time most convenient and confidential for the participants. The informants were selected for their position of leadership, either formal or informal, in the community and their ability and willingness to reflect on our findings. The informants included manager, head chef, waiter/waitress supervisor. In addition to being willing to share, reflect upon the findings of the study, informants were those observant, articulate and available for multiple interviews of varying duration on an assortment of topics related to the study.

Ethical consideration

The research protocol was presented for scientific and ethical approvals by the Ethical Review Committee of Kenya Medical Research Institute prior to commencement of field activities. Written informed consent was obtained from each participant. Confidentiality was maintained by assigning all participants with a unique identification number. All data were stored in a restricted-access room at the research station. This research adhered to the STROBE guidelines for observational studies as outlined at: http://www.strobe-statement.org.

Statistical analyses

Proportions were used to describe categorical variables. Chi-square or Fisher's exact test were used to test for significance where applicable. The overall cases of major or other depressive disorders were determined for all participants. In bivariate analyses, odds ratios (OR) and 95% confidence intervals (CI) for the association between depressive disorders and socio-demographic, economic and hotel institutional characteristics were calculated using Poisson regression. In multivariate analyses, a manual backward elimination approach was utilized to reach the most parsimonious model, including factors that were independently associated with depressive disorders at the significance level of $p \leq 0.05$. All statistical analyses were performed using STATA version 13 (StataCorp LP, Texas, USA).

The qualitative data (KII) were subjected to a thematic content analysis. This approach entails the categorization of recurrent data collected under thematic areas [Green & Thorogood, 2010]. The analysis was done manually using general purpose software tools using Microsoft Word [La Pelle, 2004].

RESULTS

Characteristics of study population

In this study, all the 360 recruited participants responded to the Self-administered questionnaires including the PHQ-9 with semi-structured questions (100% response rate). As summarized in Table 1, about 71.1% of the participants were recruited from low end luxury hotels and 51.4% were males. The mean age of the 360 responded was 28.4 (SD± 4.98) years. The majority 84.2% were aged 20 to 30 years, 55.3% had secondary level education, 35.3% worked as waiters. About 67.5% of the participants were married, 43.3% of their spouses were in self-employment, 57.2% had household population more than 4 people. About 40% of them lived in temporary houses. The mean monthly income was 26904 (SD± 12473.4) Ksh equivalent of 270(SD125) USD with 50.3% earning between 10,001 to 50,000Ksh (100 to 500 USD) monthly.

Depression awareness and experience

Table 2 summarizes the depression awareness and experiences of study participants. The majority (67.5%) of the participants were aware of depression. About 16.9% described depression as stress while 13.3% described depression as feeling down, depressed, irritable and hopelessness state. Close to 30.8% were made aware of depression through media. About 26.1% of the participants reported having suffered from depression with 65.6% stating that depression does not affect their workplace. About 13.1% sought social support (from friends and family) during depressive periods. About 25.8% of the participants had friends who had suffered from depression. From others depressive experience, 13.9% were aware of depression symptoms and consequences.

Table 1: Baseline demographic characteristics of the study participants

Socio-Demographic Characteristic	Sample size		$\chi 2$	df	P
	No	%			
Hotel type					
Low end	256	71.1	64.178	1	0.001
High end	104	28.9			
Gender					
Male	185	51.4	0.278	1	0.598
Female	175	48.6			
Age					
Mean (± SD)	28.4	(± 4.9)			
Median (IQR)	27	(26-29)			
Range	41	(20-61)			
20 - 30 Years	303	84.2			
31 - 40 Years	43	11.9	682.289	3	0.001
> 41 Years	14	3.9			
Education level					
Primary	13	3.6			
Secondary	199	55.3	325	2	0.001
Tertiary	148	41.1			
Marrital status					
Single	96	26.7			
Married	243	67.5	400.956	3	0.001
Divorced/Widow	10	2.8			
Not stated	11	3.1			
Occupation					
Cook	76	21.1			
Waiter	127	35.3			
Cleaner	57	15.8	60.167	4	0.001
Kitchen Hand	43	11.9			
Others	57	15.8			
Spouse occupation					
Unemployed	14	3.9			
Formal empolyment	58	16.1	143.556	3	0.001
Self employement	156	43.3			
Non Response	132	36.7			
Type of Housing					
Temporary	144	40			
Semi-permanent	61	16.9	154.511	2	0.001
Permanent	155	43.1			
Total household population					
Mean (± SD)	3.7	(± 1.6)			
Median (IQR)	4	(2-5)			
Range	7	(1-8)			
None	3	.8			
1 to 3	151	41.9	183.717	2	0.001
>4	206	57.2			
Monthly Income (Ksh)					
Mean (± SD)	26,904	(±12473.4)			
Median (IQR)	25000	(20,000-35000)			
Range	70000	(5000-75,000)			
None	145	40.3			
<10,000	26	7.2			
10,001 - 50,000	182	50.6	249.711	3	0.001
>50,001	7	1.9			

No - Number; % - Percentage; $\chi 2$ - Chi square; df - Degree of freedom; P - Level of significance; $P \leq 0.05$ indicates the relationship is significant

Table 2: Depression awareness and experience characteristics of the study participants

Depression awareness	Sample size		χ2	df	P
	No	%			
Aware about depression					
Yes	243	67.5	44.1	1	0.001
No	117	32.5			
Description of depression					
Lack of interest/pleasure in doing things	14	3.9			
Feeling down, depressed, irritable, hopeless	48	13.3			
Tired/Lacking energy	14	3.9	301.228	6	0.001
Feeling bad about self	30	8.3			
Lack of concentration and too much throughts	33	9.2			
Stress	61	16.9			
Not stated	160	44.4			
Source of information about depression					
Media	111	30.8			
Friends/Colleagues	48	13.3			
School	31	8.6	221.861	4	0.001
Health Sector	8	2.2			
Not stated	162	45			
Ever suffered from depression					
Yes	94	26.1	82.178	1	0.001
No	266	73.9			
Depression affect work and family					
Not difficult at all	236	65.6			
Somewhat difficult	109	30.3	205.017	2	0.001
Very difficult	15	4.2			
Steps taken during depression					
Therapy/Councelling/Medical intervention	17	4.7			
Religious interventions	5	1.4			
Social support (Friends/relatives)	47	13.1	835.11	4	0.001
Therapy/Councelling/Medical intervention	2	.6			
Not stated	289	80.3			
Aware of others suffering from depression					
Yes	93	25.8	84.1	1	0.001
No	267	74.2			
Lesion learnt from other's depression					
Avoid causes	21	5.8			
Aware of symptoms/consequences	50	13.9	492.289	3	0.001
Seek help	18	5.0			
Not stated	271	75.3			

No - Number; % - Percentage; χ2 - Chi square; df - Degree of freedom; P - Level of significance; $P \leq 0.05$ indicates the relationship is significant

Prevalence and severity of depression

Using the PHQ-9 scale; off the 360 participants 33(9.2%) were suffering from major depressive disorder while 36 (10%) as suffering with other depressive disorders (Figure 1). The severity of these depressions included 36.1% mild and 11.1% moderately severe depression (Figure 2).

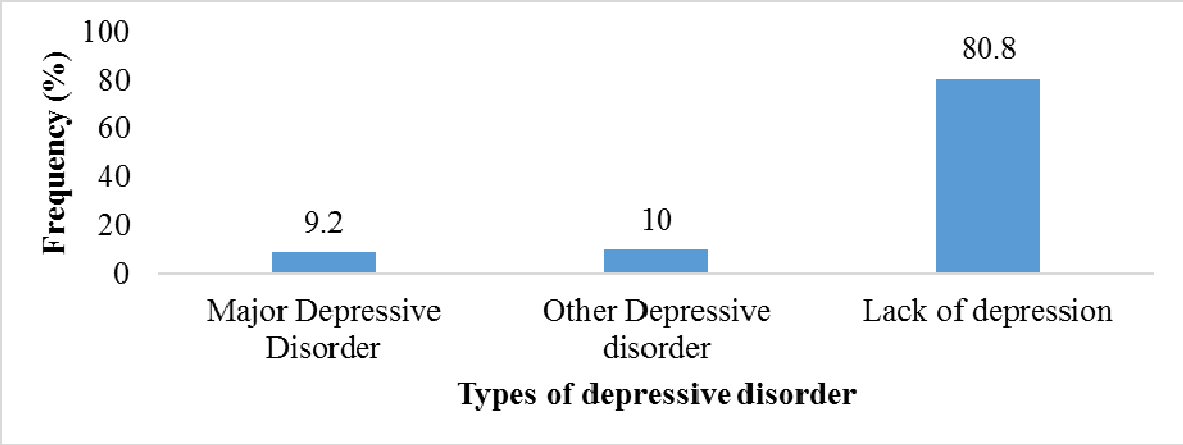

Figure 1: The frequency of depressive disorder by types

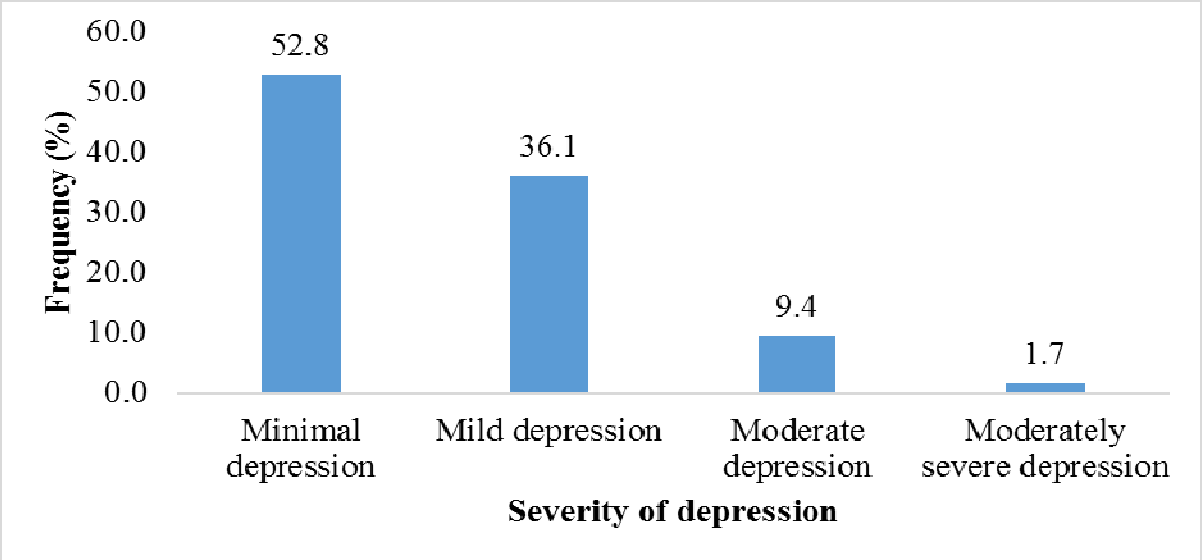

Figure 2. The frequency of depresion by sseverity

The majority of the respondents with either major or other depressive disorders were 60.6% males, 93.9%from low end hotels, 54.5% age 20 to 30 years, 42.4%with secondary level of education, 24.2 as cleaners while 63.6% were married. For other depressive disorders, the majority 61.1% were females, 96.4% from low end hotels, 75% those aged between 20 to 30 years, 55.3% with secondary level of education, while 55.6% were married

Factors associated with major depressive disorder

Table 3 and 4 summarizes socio-demographic and depression awareness factors respectively associated with depressive disorders. In bivariate analysis, the hotel workers who currently living in temporary housing (OR 0.1, 95% CI 0.01 to 0.3) and those whose spouses were in formal employment (OR 0.4, 95% CI 0.12 to 0.7) were less likely to suffer from major depressive disorder (Table 3). On the other hand, workers who had household population between 1 to 3 person (OR 4.1, 95% CI 1.9 to 8.6) and those who sought social support from relatives and friends during depressive moments (OR 3.6, 95% CI 1.8 to 7.2) were more likely to suffer major depressive disorder.

In multivariate analysis workers who lived in temporary housing (OR 0.1, 95% CI 0.03 to 0.6), who had household population between 1 to 3 person (OR 2.7, 95% CI 1.3 to 7) and those who sought social support from relatives and friends during depressive moments (OR 3.6, 95% CI 1.8 to 7.2) remained independently associated with major depressive disorder.

Factors associated with other depressive disorder

As summarized in Table 3 and 4, in bivariate analysis, the hotel workers who currently living in temporary housing (OR 0.2, 95% CI 0.01 to 0.7), aged 20 to 30 years (OR 0.3, 95% CI 0.1 to 0.9), those who earned between 10,000 to 50,000Ksh (OR 0.3, 95% CI 0.2 to 0.7), those who heard issue of depression through media (OR 0.3, 95% CI 0.1 to 0.7) or from friends and colleagues (OR 0.1, 95% CI 0.01 to 0.9) and those who believed that depression does not affect their work performance (OR 0.08, 95% CI 0.03 to 0.3) were less likely to suffer from other depressive disorder (Table 3). On the other hand, those who worked in low end luxury hotel (OR 6.2, 95% CI 1.5 to 26.3), had primary level education (OR 6.6, 95% CI 2.6 to 16.9), those who sought social support from relatives and friends during depressive moments (OR 3.4, 95% CI 1.7 to 6.8) and those who sought help during depression (OR 4.1, 95% CI 2.1 to 8.5) were more likely to suffer other depressive disorder.

In multivariate analysis workers who worked in low end luxury hotels (OR 5.3, 95% CI 1.3 to 22.7), had primary level education (OR 3.9, 95% CI 1.1 to 15.9), lived in temporary housing (OR 0.3, 95% CI 0.1 to 0.8) and those who earned between 10,000 to 50,000Ksh (OR 0.4, 95% CI 0.2 to 0.8) remained independently associated with major depressive disorder.

Table 3: Socio-demographic correlates for major and other depressive disorders

Socio-Demographic variables	Sample size	Major Depressive Disorder		Bivariate OR (95% CI)	Multivariate OR (95% CI)	Other Depressive Disorder		Bivariate OR (95% CI)	Multivariate OR (95% CI)
		No	%			No	%		
Hotel type									
Low end	256	31	12.1	0.9(0.5-1.8)	0.8(0.4-1.7)	25	9.8	**6.2(1.5-26.3)**	**5.3(1.3-22.7)**
High end	104	2	1.9	Referent	Referent	11	10.6	Referent	Referent
Gender									
Male	185	20	10.8	1.7(0.8-3.2)	1.5(0.7-3.2)	14	7.6	0.7(0.3-1.3)	0.8(0.4-1.8)
Female	175	13	7.4	Referent	Referent	22	12.6	Referent	Referent
Age									
20 - 30 Years	303	18	5.9	1.2(0.2-9.1)	0.8(0.1-6.8)	27	8.9	**0.3(0.1-0.9)**	0.8(0.2-3.6)
31 - 40 Years	43	12	27.9	2.6(0.3-20.8)	2.2(0.3-18.5)	8	18.6	1.3(0.3-4.6)	2.2(0.5-9.1)
>41	14	3	21.4	Referent	Referent	1	8.3	Referent	Referent
Education level									
Primary	13	7	58.3	0.8(0.1-6.2)	1.2(0.1-11.5)	1	7.7	**6.6(2.6-16.9)**	**3.9(1.1-15.9)**
Secondary	199	14	7	1.1(0.6-2.2)	1.1(0.5-2.3)	21	10.6	0.9(0.4-1.8)	1.1(0.5-2.4)
Tertiary	148	12	8.1	Referent	Referent	14	9.5	Referent	Referent
Marrital status									
Single	96	6	6.3	0.7(0.2-3.3)	0.8(0.2-3.7)	13	14	0.3(0.1-1.7)	0.4(0.08-2.1)
Married	243	21	8.6	0.5(0.1-1.9)	0.6(0.1-2.4)	20	8	0.5(0.1-2.1)	0.5(0.4-2.5)
Divorced/Widow	10	4	40	0.6(0.04-6.1)	0.5(0.03-5.6)	1	10.0	2.2(0.4-12.1)	1.9(0.3-12.3)
Not stated	11	2	18.2	Referent	Referent	2	18.2	Referent	Referent
Occupation									
Cook	76	7	9.2	0.8(0.2-2.6)	0.9(0.3-3.4)	5	6.6	0.8(0.4-2.1)	0.6(0.2-1.9)
Waiter	127	7	5.5	1.8(0.7-4.7)	2(0.7-5.9)	20	15.7	0.4(0.2-1.2)	0.5(0.2-1.5)
Cleaner	57	8	14.0	1.1(0.3-3.9)	1.1(0.3-4.3)	2	3.5	0.8(0.2-2.6)	0.5(0.1-1.8)
Kitchen Hand	43	4	9.3	0.4(0.1-2.1)	04(0.1-2.7)	4	9.3	1.1(0.4-3.2)	0.6(0.2-2.4)
Others	57	7	12.3	Referent	Referent	5	8.8	Referent	Referent
Spouse occupation									
Unemployed	14	3	21.4	0.5(0.1-3.5)	1.3(0.1-9.3)	1	7.1	0.9(0.4-2.5)	0.8(0.2-4.2)
Formal empolyment	58	6	10.3	**0.3(0.1-0.8)**	1.1(0.4-2.8)	7	12.1	0.6(0.3-1.4)	1.2(0.3-6.3)
Self employement	156	10	6.4	0.8(0.3-1.8)	1.1(0.1-9.3)	8	5.1	2.1(0.6-7.1_	0.8(0.8-7.7)
Non Response	132	14	10.6	Referent	Referent	20	15.2	Referent	Referent
Type of Housing									
Temporary	144	4	2.2	**0.1(0.01-0.3)**	**0.1(0.03-0.6)**	2	1.5	**0.2(0.1-0.7)**	**0.3(0.1-0.8)**
Semi-permanent	61	10	16.4	0.5(0.2-1.2)	0.5(0.2-1.4)	6	9.8	1.2(0.6-2.6)	1.2(0.2-9.1)
Permanent	155	19	12.3	Referent	Referent	28	18.1	Referent	Referent
Household adult population									
1 to 3	327	28	8.6	0.6(0.2-1.6)	0.6(0.2-1.7)	31	9.5	0.6(0.2-1.5)	0.9(0.3-2.7)
>4	33	5	15.2	Referent	Referent	5	15.2	Referent	Referent
Total household population									
1 to 3	154	17	11.3	**4.1(1.9-8.6)**	**2.7(1.03-7)**	27	17.9	1.4(0.7-2.8)	0.7(0.1-3.9)
>4	206	16	7.8	Referent	Referent	9	4.4	Referent	Referent
Monthly Income (Ksh)									
<10,000	26	2	7.7	1.4(0.5-4.4)	0.6(0.2-1.9)	4	15.4	0.5(0.1-2.3)	1.4(0.1-18.6)
10,001 - 50,000	182	9	4.9	0.8(0.4-1.7)	0.9(0.5-2.1)	16	8.8	**0.3(0.2-0.7)**	**0.4(0.2-0.8)**
>50,001	7	1	14.3	1.3(0.2-10)	1.5(0.1-11.3)	1	14.3	0.9(0.1-7.3)	ND
None	145	21	14.5	Referent	Referent	15	10.3	Referent	Referent

No - Number; % - Percentage; OR - Odds ratio; CI - confidence interval; ND - Not done

Table 4: Depression awareness correlates for major and other depressive disorders

Depression awareness	Sample size	Utilization of Family		Bivariate	Multivariate	Utilization of Family		Bivariate	Multivariate
		No	%	OR (95% CI)	OR (95% CI)	No	%	OR (95% CI)	OR (95% CI)
Aware about depression									
Yes	243	22	9.1	0.9(0.5-1.9)	0.5(0.1-2.9)	24	9.9	0.9(0.5-1.9)	1.9(0.2-18.2)
No	117	11	9.4	Referent	Referent	12	10.3	Referent	Referent
Description of depression									
Lack of interest in doing things	14	3	21.4	2.1(0.8-5.5)	2.8(0.5-15.3)	0	0	0.9(0.3-3.1)	1.1(0.03-34.8)
Feeling down & depressed	48	5	10.4	1.3(0.5-3.4)	1.2(0.3-6.1)	6	12.5	0.9(0.3-2.5)	2.9(0.06-134.8)
Tired/Lacking energy	14	2	14.3	ND	ND	3	21.4	1.2(0.3-5.5)	ND
Feeling bad about self	30	3	10	ND	ND	6	20	0.9(0.2-3.1)	0.5(0.05-4.7)
Lack of concentration	33	0	0	1.4(0.4-2.7)	1.1(0.2-5.2)	0	0	0.3(0.4-0.7)	0.91(0.02-40)
Stress	61	2	3.3	2.2(0.7-7.8)	2.9(0.5-18.1)	6	9.8	2.2(0.7-7.8)	1.2(0.02-40)
Not stated	160	18	11.3	Referent	Referent	15	9.4	Referent	Referent
Information source									
Media	111	5	4.5	1.3(0.6-2.6)	1.2(0.2-6.3)	13	11.7	**0.3(0.1-0.7)**	ND
Friends/Colleagues	48	1	2.1	1.5(0.6-3.8)	4.2(0.4-47)	7	14.6	**0.1(0.01-0.9)**	ND
School	31	2	6.5	ND	ND	0	0	ND	0.4(0.01-14)
Health Sector	8	0	0	1.3(0.2-10.2)	1.3(0.3-5.1)	1	12.5	0.4(0.1-1.8)	0.3-0.08-14.9
Not stated	162	25	15.4	Referent	Referent	15	9.3	Referent	Referent
Ever suffered from depression									
Yes	94	8	8.5	2.1(1.1-3.9)	0.3(0.03-2.5)	15	16	1.1(0.7-18.9)	0.6(0.2-18.1)
No	266	25	9.4	Referent	Referent	21	7.9	Referent	Referent
Depression affect work and family									
Not difficult at all	236	8	3.4	1.2(0.2-9.1)	1.1(0.1-9.1)	19	8.1	**0.08(0.03-0.3)**	0.4(0.9-1.1)
Somewhat difficult	109	19	17.4	2.2(0.3-16.6)	1.1(0.1-9.9)	16	14.7	0.4(0.2-1.1)	0.6(0.04-9.3)
Very difficult	15	6	40	Referent	Referent	1	6.7	Referent	Referent
Severity of Depression									
Minimal depression	190	0	0						
Mild depression	130	0	0	ND	ND			ND	ND
Moderate depression	34	28	82.4						
Moderately severe depression	6	5	83.3						
Steps taken during depression									
Therapy/Councelling	19	1	5.9	0.6(0.1-5.1)	1.4(0.1-24)	1	5.9	0.6(0.1-5.1)	0.6(0.01-40)
Religious interventions	5	1	20	ND	ND	0	0	ND	0.1(0.03-52.8)
Social support (Friends/relatives)	47	1	2.1	**3.6(1.8-7.2)**	3.8(0.4-32)	13	27.7	**3.6(1.8-7.2)**	0.8(0.3-18.1)
Not stated	289	29	10	Referent	Referent	22	7.6	Referent	Referent
Know other depressed									
Yes	93	18	19.4	1.1(0.5-2.2)	ND	10	10.8	**3.4(1.7-6.8)**	1.2(0.2-9.3)
No	267	15	5.6	Referent	Referent	26	9.7	Referent	Referent
Lesion learnt other's depression									
Avoid causes	21	1	4.8	1.5(0.5-4.9)	ND	3	14.3	1.7(0.4-7.7)	0.9(0.03-19.6)
Aware of symptoms/consequences	50	13	26	0.8(0.3-2.3)	ND	4	8	0.7(0.1-5.7)	0.1(0.01-3.7)
Seek help	18	2	11.1	1.7(0.5-5.7)	ND	3	16.7	**4.1(2.1-8.5)**	0.6(0.1-5.1)
Not stated	271	17	6.3	Referent	Referent	26	9.6	Referent	Referent

No - Number; % - Percentage; OR - Odds ratio; CI - confidence interval; NS - Not significant; ND - Not done

DISCUSSION

In this cross-sectional study among workers form luxury hotels in Nairobi, the prevalence of major and other depressive disorders was 9.2% and 10% respectively. Compared to other depressive disorders, the major depressive disorders affect males more than female and those who worked as cleaners as oppose to waiters for other depressive disorders. For both form of depressive disorders, the most affected were those who worked in the low end hotels, the younger in age, those with secondary and above level of education, and those who were married. Compared to other studies, slighter low level of depression was reported. Kessler et al [2008] reported a total of 6.4% of employed National Comorbidity Survey Replication respondents had 12-month major depressive disorder. In Canada, Blackmore et al., [2007] reported a prevalence of 4.6% workface with major depressive episodes. Lifetime and 12-month prevalence rates of major depressive disorder are estimated at 12.8% to 16.6% and 3.9% to 6.7%, respectively [Alonso et al., 2004; Kessler et al 2005a; 2005b; 2008]. Contrary to our study women are twice as much as affected than men by major depressive disorder [Alonso et al., 2004]. Similar to our study, a substantial proportion of those affected by major depressive disorder are of young working age [Kessler et al., 2008].

Among the factors reported in this study associated with depressive disorder included; poor social status (such as due to occupancy of temporary housing, high household population and seeking medical help and social

support from relatives and friends during depressive moments and low monthly income), young age, low education status, barrier to information (such as getting information from friends and colleagues), poor working environment (working in low end luxury hotels). Just like in our study, poor pay and low reward was found to be a predictive factor of major depressive disorder [Niedhammer et al., 2015]. High job strain (high psychological demands and low decision latitude), low levels of social support within the workplace, low job security, and increased psychological demands have been reported to be associated with an increased risk of experiencing depression [Mausner-Dorsch et al., 2000].

Some other studies among workface have identified other independent factors associated with depression that we did not either measure or find to be significant in this study, low decision latitude, effort reward imbalance, low support, unfavorable social climate, lack of procedural and relational justice, conflicts with superiors and colleagues, limited skill discretion, job insecurity and long working week [Theorell et al., 2015].

Limitations

Our study had several limitations. Because of the cross-sectional nature of the study, we cannot comment on the direction of the relationship between work factors and depression. Although it is plausible that work stressors are risk factors for depression, there is also evidence for pathways leading from psychological symptoms to work characteristics [de Lange et al., 2004].

Another issue is the influence of personality on the association between work stressors and depression. It has been hypothesized that personality traits such as negative affectivity—the tendency to report negatively on environmental factors and health—may steer people into less favorable occupations or, more likely, may influence the reporting of work characteristics and be an independent predictor of depressive illness [Naswall et al., 2005].

Although the interviewers underwent extensive training, they were not clinicians. Therefore, some cases of major depressive episodes caused by a physical condition or drug use may have been included.

Conclusions

Depression in the workplace is a major public health problem that requires intervention yet remains under recognized and under-treated. Effective treatment with medication may reduce the likelihood of experiencing major depressive episodes or enable those who are at risk to cope better with work stress. Because of the high demands, short staff turnaround time and lay off in hotel industries, workplace mental health promotion could be seen as one way of facilitating economic growth and ensuring the sustainability of overburdened social welfare systems. Many of the same factors that influence the risk of major depressive episodes also influence the risk of taking sickness absence, namely, high demands, low support, low skill discretion, and low decision authority. More research is needed to study the types and levels of work stress related to depression

Our study is one of the few to show a relation between work stress and major depressive episodes assessed in several luxury hotels in Kenya. The finding that men and women differ in the components of work stress related to major depressive episodes is notable and underlines the importance of considering gender differences in designing future research studies.

Competing interests

The authors declare no competing interests.

Authors' contributions

This work was part of Master of Science degree for KKG in Public Health at the Jomo Kenyatta University of Agriculture and Technology. KKG, YK and PM conceived and designed the study. KKG conducted field work and collected data. MON and KKG conducted data analysis and wrote the draft manuscript. YK and PM advised and supervised data analysis and reviewed the manuscript. All authors read and approved the final manuscript.

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