A Study On Mental Health Status Among Bakery Workers Of Dehradun: A Cross Sectional Study

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Abstract

Background- It is increasingly being recognized that the mental health of employees is a crucial determinant in their overall health and that poor mental health and stressors at the workplace can be a contributory factor to a range of physical illnesses and can also lead to burn-out amongst employees. Our research aimed to address this gap by studying the health of low-wage bakery workers in Dehradun.

Material and Methods- In this study, a face-to-face interview, lasting between 20 and 25 min was carried out with each of the 521 bakery workers at the work-place after securing written consent from both employers and workers. To measure depressive symptoms, Patient Health Questionnaire (PHQ-9) is used. To measure the anxiety Generalized Anxiety Disorder Scale (GAD-7; Spitzer et al., 2006) was used.

Results- The association of depressive symptoms were found to significant with age, education, religion, family income and feeling mentally overburdened. There is little difference in percentage of symptoms categories of anxiety according to felling overburden physically or mentally. Religion, family income, Musculoskeletal pain and job security were significantly associated with anxiety symptoms.

Conclusion - Due to fluctuation eating habits of the people and influence of foreign, bakery industry has gained immense popularity and so the workers in this industry are also increasing in proportion to the population size in India.

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Introduction:

It is increasingly being recognized that the mental health of employees is a crucial determinant in their overall health and that poor mental health and stressors at the workplace can be a contributory factor to a range of physical illnesses and can also lead to burn-out amongst employees, seriously affecting their ability to contribute meaningfully in both their personal and professional lives. [1]

World Health Organization (WHO) has come up with a comprehensive definition of mental health as a state of well-being, facilitating longer and healthier living, availing less health services utilities, take fewer off days from work, more productive, earn higher income and likely to be in long term relationships with people and environment. [2] Data from different countries around the world indicate that mental health problems are a cause of a number of employees dropping out of work. [3, 4]

Bakeries are small- scale food industries, most owners and workers are low -wage and at or near poverty line. With limited resources, bakeries may have difficulty investing in the infrastructure and resources necessary to ensure a safe and healthy work environment. [5] Most studies on the health of bakery workers have focused on industrial bakeries in developed countries, with a major emphasis on the respiratory effects of flour dust [6-7] or the allergies and skin problems it produces. [8] This literature has not filled the gaps in knowledge about the occupational health or mental health of bakery workers in low-middle income countries like India as they are vulnerable population facing hazardous occupational settings.

Our research aimed to address this gap by studying the health of low-wage bakery workers in Dehradun and exploring the links for better addressing the often-neglected topic between

the mental health, workplace and psychosocial factors among bakery workers.

Methodology

This cross-sectional survey of a representative sample of bakery workers in Dehradun. Using convenient sampling technique, 24 bakeries were selected located within 10 km of college campus, yielding a final sample of 521 bakery workers. During data collection, 97 bakery workers were refused to participate for reasons of lack of time or mistrust.

A face-to-face interview, lasting between 20 and 25 min was carried out with each of the 521 bakery workers at the work-place after securing written consent from both employers and workers. The questionnaire, which had been pilot-tested before conducting the interviews, included items on mental health, chronic illnesses, musculoskeletal symptoms, psychosocial aspects of work, as well as socio-demographic variables. To measure depressive symptoms, Patient Health Questionnaire (PHQ-9) is used. It was a self-reported questionnaire that asks about the nine items. For each item, responses were rated on a 4-point scale from 0 ("Not at all") to 3 ("Nearly every day"), with higher scores representing increased levels of depression (total score range 0–27). [10]To measure the anxiety Generalized Anxiety Disorder Scale (GAD-7; Spitzer et al., 2006) was used. It was self-administered questionnaire that asks about seven items. For each item, responses are rated on a 4-point scale from 0 to 3, with higher scores representing increased levels of anxiety (total score range 0–21). [10-11]

Statistical Analysis

Frequency and percentages have been used to estimate the prevalence of anxiety and depression. Chi square test was used to study the association between categorical variables. Multiple linear regression analyses was conducted to examine the relationship between mental health symptoms and all the respondent characteristics. The data were analyzed using SPSS Software (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). A two-tailed p-value less than 0.05 was defined as statistical significance.

Results-

Characteristics of Respondents

The final number of respondents participated were n=521. Descriptive statistics of the sample characteristics, its association with mental health variables (PHQ-9 and GAD-7) are presented in Table 1 and Table-2. The vast majority of respondents were in age group 25-44 and most of the respondents were intermediate level educated. Majority (83.5%) were Hindu by religion. thirty Eight per cent female reported that their family income was between 10,000 to 15,000 (in INR). Just above half of the respondents were (51.8%) of the participants felt mentally overburdened. Thirty Five per cent responded that they felt changes in Sleep Pattern.

Mental Health Outcomes

PHQ-9

Table 1 summarizes findings in relation to levels of stress with respondent characteristics. Based on their PHQ-9 scores 0.4 % of individuals were categorized as having "no" depressive symptoms (PHQ-9 score: 0-4), 12.3 % had "mild" symptoms (5-9), 50.1 % had "moderate" symptoms (10-14), 25.5% had "moderately severe" symptoms (15-19), while 11.3% had "severe" symptoms (20-27). 28.8% workers of 15-24 year age group were shown to be severely depressed, while the 3.9 % of respondent reported severely depressed were in age group in 25-34.

Overall percentage of severe depressed were decreasing with high education. Percentage of severely is higher in (5,000-10,000) family income group with comparison to more high income groups. Vast difference in percentage of severely depressed was noticed who are not secured about their job. Percentages of moderately severe were higher who felt physical and mentally overburdened in comparison to those who don't. The association of depressive symptoms were found to significant with age, education, religion, family income and feeling mentally overburdened.

GAD-7

As for general anxiety disorder, only 7/521 (1.3%) individuals lied in none category (GAD-7 score: 0-4), 66.8% individuals had "none" (GAD-7 score: 0-4), while 176 (33..8%) had

"mild" (5-9), 266 (51.1%) had "moderate" (10-34), and 72 (13.8%) had "severe" (15-21) anxiety symptoms. In standings of symptomato logy, younger age group is more severely anxious while prevalence of moderate anxiety is more in older aged group. About thirty per cent workers had severe anxiety symptoms who faced musculoskeletal pain. There is little difference in percentage of symptoms categories of anxiety according to felling overburden physically or mentally. Religion, family income, Musculoskeletal pain and job security were significantly associated with anxiety symptoms.

Multiple Linear Regression analysis

Multivariable linear regression analysis is used to exposes the relationship of respondents' characteristics with their depressive and anxiety symptom scores are presented in Table 3. Overall, low family income group workers were significantly associated with depressive symptoms b=1.271; 95% CI (-2.432-0.110), b= 1.272; 95% CI (0.615-1.929) and b= 0.037 95% CI; -0.897-0.823 respectively for 5,000-10,000, 10.000-15,000 and 15,000-20,000 group. Workers who faced Musculoskeletal pain had significant association with Depression b= 1.158; 0.234-2.094. Job Security was also found to be significant associated with anxiety score (b= 1.627; 95% CI (-3.864-0.610); p< 0.05) and depressive score b= 0.978; 95% CI 0.161-2.224.

Discussion

Due to fluctuation eating habits of the people and influence of foreign, bakery industry has gained immense popularity and so the workers in this industry are also increasing in proportion to the population size in India. Bakery is an establishment where workers from different age groups are involved as in our study 59.5 % of the bakery workers belong to 25- 44 years of age group similar to our study Lakshmi et al, revealed that 77% of workers were within the age bracket of 15–30 years [12] contrary to our study conducted by Rima R. et al, 44.0 % of bakery workers belong to 40 or older age group. The PHQ facilitates criteria-based diagnoses of depression and other mental disorders commonly encountered in primary care and research settings.[13] Based on the PHQ-9 scores in our study it was observed that only 0.4 % of individuals were categorized as having "no" depressive symptoms, 12.3 % had "mild" symptoms, 50.1 % had "moderate" symptoms, 25.5%, while 11.3% had "severe" symptoms, Another study done by Hinz et al observed varied findings in his study that the majority of individuals i.e. 49.8% were having no depressive symptoms and 35.1 %, 11.3 % and 3.7 % has mild, moderate and severe depression respectively.[9]

In our study severe depression was observed more in the younger age group i.e. 28.8 % in 15-24 years age group and 5.1 % and 6.9 % in 35-44 and > 45 years of age, similarly it has been observed constantly in various community surveys that elderly people have much less clinical depression than younger people. [14]

An association between lower educational attainment and increased risk for major depressive disorder has been confirmed in various studies in our study overall percentage of severe depressed individuals were decreased with high level of education. It was found out in a meta-analysis of 37 studies from various countries that there was a 3% decrease in log odds ratio (OR) for depression per additional year of education. [15] Research of the World Mental Health Survey Initiative also found that those with high educational levels are generally at lower risk for depression in high-income countries, although study conducted in Japan has observed an inverted association. [16]

In our study percentage of severity was higher in low (5,000-10,000) family income group in comparison to more high income groups, Similar study done by Turner et al also observed that the life in the lower strata of socioeconomic status is more stressful, and stress is connected to depressive disorder. [17]

In comparison to our study, study done Zarean et al [18] observed that 31.1% of participants had severe anxiety, 26.4% moderate, 22.7% mild, and 19.8% did not experience symptoms of anxiety.
In our study prevalence of anxiety was more observed in younger age group in another study done by Mondin et al found that the prevalence of anxiety was 20.9% in young adults. [19]

It has been well documented that anxiety and depression are associated with increased pain

response, and musculoskeletal pain is common in the general population and has been associated with anxiety in various studies. About thirty per cent workers had severe anxiety symptoms who faced musculoskeletal pain in this study, however similar findings were observed by Poleshuck that Anxiety disorders have been found in 35% of chronic pain patients in comparison to 18 % of the general population. [20-21]

Table 1: PHQ-9 Categories by Sub Groups

Variables		Total	None	Mild	Moderate	Moderately Severe	Severe	P value
All	All	521(100.0)	4(0.8)	64(12.3)	261(50.1)	133(25.5)	59(11.3)	
Age Group (in Years)	15-24	139(26.7)	1(0.7)	16(11.5)	68(48.9)	14(10.1)	40(28.8)	
	25-34	153(29.4)	1(0.7)	21(13.7)	68(44.4)	37(37.3)	6(3.9)	0.000
	35-44	157(30.1)	2(1.3)	21(13.4)	91(58.0)	35(22.3)	8(5.1)	
	≥45	72(13.8)	0(0.0)	6(8.3)	34(47.2)	27(37.5)	5(6.9)	
Education	Illiterate	95(18.2)	1(1.1)	11(11.6)	49(51.6)	18(18.9)	16(16.8)	
	Primary level or below	75(14.4)	1(1.3)	5(6.7)	34(45.3)	20(26.7)	15(20.0)	
	Secondary level	150(28.8)	0(0.0)	25(16.7)	72(48.0)	36(24.0)	17(11.3)	0.038
	Intermediate level	164(31.4)	2(1.2)	18(11.0)	85(51.8)	51(31.1)	8(4.9)	
	University level	37(7.1)	0(0.0)	5(13.5)	21(56.8)	8(21.6)	3(8.1)	
Religion	Hindu	435(83.5)	4(0.9)	57(13.1)	238(54.7)	116(26.7)	20(4.6)	
	Muslim	55(10.6)	0(0.0)	1(1.8)	10(18.2)	8(14.5)	36(65.5)	0.000
	Others	31(5.9)	0(0.0)	6(19.4)	13(41.9)	9(29.0)	3(9.7)	
Family Income	5,000-10,000	178(34.2)	0(0.0)	12(6.7)	80(44.9)	61(34.3)	25(14.0)	
	10,000-15,000	202(38.8)	1(0.5)	29(14.4)	103(51.0)	45(22.3)	24(11.9)	0.014
	15,000-20,000	80(15.4)	2(2.5)	10(12.5)	40(50.0)	21(26.3)	7(8.8)	
	20,000-25,000	61(11.7)	1(1.6)	13(21.3)	38(62.3)	6(9.8)	3(4.9)	
Musculoskeletal pain	Yes	143(27.4)	0(0.0)	17(11.9)	75(52.4)	22(15.4)	29(20.3)	0.021
	No	134(25.7)	2(1.5)	13(13.7)	64(47.8)	37(27.6)	18(13.4)	
Chronic Illness	Yes	270(51.8)	3(1.1)	32(11.9)	137(50.7)	71(26.3)	27(10.0)	0.790
	No	251(48.2)	1(0.4)	32(12.7)	124(49.4)	62(24.7)	32(12.7)	
Feeling Overburdened	Yes	124(23.8)	2(1.6)	14(11.3)	56(45.2)	37(29.8)	15(12.1)	0.745
	No	397(76.19)	2(0.5)	50(12.6)	205(51.6)	96(24.2)	44(11.1)	
Job Satisfaction	Yes	262(50.3)	3(1.1)	32(12.2)	133(50.8)	63(24.0)	31(11.8)	0.883
	No	259(49.7)	1(0.4)	32(12.4)	128(49.4)	70(27.0)	28(10.8)	
Getting time for your Self	Yes	262(50.3)	1(0.4)	34(13.0)	129(49.2)	69(26.3)	29(11.1)	0.964
	No	259(49.7)	3(1.2)	30(11.6)	132(51.0)	64(24.7)	30(11.6)	
Felling Mentally Overburden	Yes	270(51.8)	1(0.4)	35(13.0)	121(44.8)	83(30.7)	30(11.1)	0.027
	No	251(48.2)	3(1.2)	29(11.6)	140(55.8)	50(19.9)	29(11.6)	
Changing Sleep Pattern	Yes	186(35.7)	3(1.6)	24(12.9)	90(48.4)	52(28.0)	17(9.1)	0.846
	No	178(34.2)	1(0.6)	22(12.4)	90(50.6)	43(24.2)	22(12.4)	
Job Security	Secure	19(3.6)	0(0.0)	0(0.0)	6(31.6)	5(26.3)	8(42.1)	0.036
	Insecure	38(7.3)	0(0.0)	4(10.5)	18(47.4)	8(21.1)	8(21.1)	

Table 2: GAD-7 CATEGORIES BY SUB GROUPS

Variables		Total	None	Mild	Moderate	Moderately Severe	p- value
All	All	521(100.0)	7(1.3)	176(33.8)	266(51.1)	72(13.8)	
Age Group(in Years)	15-24	139(26.7)	1(0.7)	55(39.6)	59(42.4)	24(17.3)	
	25-34	153(29.4)	4(2.6)	47(30.7)	80(52.3)	22(14.4)	0.259
	35-44	157(30.1)	2(1.3)	51(32.5)	84(53.5)	20(12.7)	
	≥45	72(13.8)	0(0.0)	23(31.9)	43(59.7)	6(8.3)	
Education	Illiterate	95(18.2)	0(0.0)	37(38.9)	46(48.4)	12(12.6)	
	Primary level or below	75(14.4)	1(1.3)	25(33.3)	46(48.4)	18(24.0)	
	Secondary level	150(28.8)	2(1.3)	47(31.3)	31(41.3)	17(11.3)	0.280
	Intermediate level	164(31.4)	3(1.8)	54(32.9)	84(56.0)	21(12.8)	
	University level	37(7.1)	1(2.7)	13(35.1)	86(52.4)	4(13.8)	
Religion	Hindu	435(83.5)	5(1.1)	142(32.6)	238(54.7)	50(11.5)	
	Muslim	55(10.6)	1(1.8)	22(40.0)	15(27.3)	17(30.9)	0.000
	Others	31(5.9)	1(3.2)	12(38.7)	13(41.9)	5(16.1)	
	Nuclear	251(48.2)	2(0.8)	90(35.9)	123(49.0)	36(14.3)	
Family Income	5,000-10,000	178(34.2)	0(0.0)	64(36.0)	99(55.6)	15(8.4)	
	10,000-15,000	202(38.8)	5(2.5)	70(34.7)	90(44.6)	37(18.3)	0.023
	15,000-20,000	80(15.4)	2(2.5)	25(31.3)	41(51.3)	12(15.0)	
	20,000-25,000	61(11.7)	0(0.0)	17(27.9)	36(59.0)	8(13.1)	
Musculoskeletal pain	Yes	37(7.1)	0(0.0)	14(27.8)	12(32.4)	11(29.7)	0.006
	No	484(92.9)	7(1.4)	162(33.5)	254(52.5)	61(12.6)	
Chronic Illness	Yes	124(23.8)	2(1.6)	42(33.9)	61(49.2)	19(15.3)	0.730
	No	397(76.19)	5(1.3)	134(33.9)	205(51.9)	53(13.4)	
Feeling Overburdened	Yes	262(50.3)	5(1.9)	87(33.2)	135(51.5)	35(13.4)	0.949
	No	259(49.7)	2(0.8)	89(34.4)	131(50.6)	37(14.3)	
Job Satisfaction	Yes	262(50.3)	5(1.9)	98(37.4)	124(47.3)	35(13.4)	0.126
	No	259(49.7)	2(0.8)	78(30.1)	142(54.8)	37(14.3)	
Felling Mentally Overburden	Yes	270(51.8)	4(1.5)	87(32.2)	139(51.5)	40(14.8)	0.689
	No	251(48.2)	3(1.2)	89(35.5)	127(50.6)	32(12.7)	
Changing _Sleep Pattern	Yes	186(35.7)	3(1.6)	60(32.3)	98(52.7)	25(13.4)	0.512
	No	178(34.2)	4(1.2)	116(34.6)	168(50.1)	47(14.1)	
Job Security	Secure	103(19.7)	2(1.9)	39(37.9)	40(38.8)	22(21.4)	0.007
	Insecure	418(80.2)	5(1.2)	137(32.8)	226(54.1)	50(12.0)	

Table 3: Participants characteristics with PHQ-9 and GAD -7 based on multiple linear regression

	PHQ- 9		GAD- 7	
Variables	Beta Coefficients (95% CI)	p-value	Beta Coefficients (95% CI)	p-value
Age(Years)	0.89(-0.019-0.042)	0.014	0.95(-0.261-1.390)	0.033
Education (" University level " Reference Category)				
Illiterate	0.268(-1.21-1.75)	0.023	0.337(-0.502-0.829)	0.071
Primary level or below	0.045(-1.29-1.38)	0.048	0.447(0.589-1.483)	0.037
Secondary level	0.236(-0.477-0.949)	0.015	0.228(-1.544-1.088)	0.734
Intermediate level	0.484(-0.442-1.409)	0.305	0.321(-1.544-1.088)	0.023
Religion ("Others" Reference Category)				
Hindu	0.007(-1.137-1.150)	0.991	0.015 (-1.034-0.788)	0.157
Muslim	1.778(2.332-5.224)	0.000	0.284(-0.809-0.759)	0.000
family Income(" 20,000-25,000' Reference Category)				
5,000-10,000	1.271(-2.432-0.110)	0.032	2.638(0.629-3.439)	0.012
10,000-15,000	1.272(0.615-1.929)	0.000	1.151(0.049-2.746)	0.035
15,000-20,000	0.037(-0.897-0.823)	0.933	1.627(0.067-2.146)	0.042
Musculoskeletal pain("No" Refere Category)				
Yes	1.453(0.544-2.088)	0.021	1.158(0.234-2.094)	0.015
Chronic Illness ("No" Reference Category)				
Yes	0.089(-0.516-1.612)	0.216	0.194(-0.265-0.588)	0.151
Feeling Overburdened("No" Reference Category)				
Yes	1.193(0.161-2.224)	0.024	0.456(-0.126-1.218)	0.156
Job Satisfaction ("No" Reference Category)				
Yes	0.415(-1.115-0.536)	0.812	0.514(0.161-2.224)	0.165
Getting time for your Self("No" Reference Category)				
Yes	1.243(-4.314-2.171)	0.474	0.845(0.549-1.142)	0.015
Felling Mentally Overburden("N Reference Category)				
Yes	-1.531(-4.629-0.439)	0.518	-1.463(-0.324-0.544)	0.161
Changing Sleep Pattern("No" Reference Category)				
Yes	-1.700(-0.037-3.362)	0.495	0.164(0.056-1.614)	0.185
Job Security ("No" Reference Category)				
Yes	1.627(-3.864-0.610)	0.002	0.978(0.161-2.224)	0.011

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