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GENDER DIFFERENCES IN SLEEP AND PSYCHOLOGICAL STATUS IN RESPONSE TO LOCKDOWN DUE TO CORONAVIRUS EPIDEMIC

Physiology

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ABSTRACT

This cross-sectional descriptive study was conducted in April-May 2020 during the lockdown due to the corona virus epidemic to determine the gender differences in psychological responses and sleep amongst 774 adult respondents (397 females: 51.29% and 377 males; 48.71%). A pre-tested and pre-validated questionnaire was administered via Google forms using the chain sampling technique. The mean age of female respondents was 24.38 +/- 6.68 years while that for males was 25.32 +/- 8.14 years. A significantly higher ($Z=4.441$; $p<0.0001$) number of female respondents reported having indoor hobbies that would potentially act as coping mechanism during the lockdown. More female respondents reported significant increase in annoyance and irritability ($Z=1.987$; $p=0.046$), fear of getting infected with corona virus ($Z=1.967$; $p=0.048$), sleeping late at night ($Z=5.165$; $p<0.0001$) and sleeping in afternoons ($Z=5.264$; $p<0.001$). On the brighter side, more female respondents felt that the lockdown had significantly improved ($Z=2.939$; $p=0.003$) emotional bonding with friends and family.

KEYWORDS

Corona virus, Covid-19, Gender, Lockdown, Psychological status, Sleep

INTRODUCTION

National lockdowns are attempts at disease containment by enforcing curbs on extra-domestic movement and intra-city and inter-city travel and attempts made to effect a change in public behaviour, which can help slow the transmission of a disease as long as that change in behaviour continues to be enforced. [1] National lockdowns entail huge socio-economic and political costs and are not therefore sustainable in the long-term. [1]

Though lockdowns help in prolonging the doubling time of cases [2] and in reducing infections, lockdowns also cause reduced access to family, friends, and other social support systems resulting in loneliness, anxiety and depression. [3] Lockdowns and disease containment events might also be deleterious to the mental health of people experiencing starvation and homelessness, many of whom tend to equate compulsory hospitalization with incarceration. [4]

Indians were actually given a rehearsal through a 14-hour (0700 hours to 21 hours) voluntary "Janata Curfew" on 22nd March 2020, which helped in mental preparation of the Indian population for the nationwide lockdown. A study [5] on sentiment analysis reported that the prominent sentiment was determination and commitment to control the outbreak, followed by conviction that the Indian government would implement the lockdown successfully.

It has been suggested that for India, two or three lockdowns or a single 49-day lockdown can slowdown the spread of the disease. [6] Several mathematical models, based on a system of differential equations, have already been prepared to study the dynamics of transmission of coronavirus pandemic. [7-10] As a consequence of the non-availability of a vaccine, social distancing is being used as the main prevention and control strategy to break the chain of transmission. [11] The purpose of various initiatives is the restriction of social interaction in workplaces, places of recreation and educational institutions, which gives vulnerable populations a better chance of surviving the epidemic. The hurdles in the path of a successful lockdown in India include the absence of a vaccine, shortcomings in health infrastructure and barriers in maintaining social distance. [1] Population density and packed public transport complicate social distancing in India. The population density of India is 2.96 times more than that of China (India's 440.29 person per square km versus China's 148.81 person per square km). [12] Travelling by public transport complicates social distancing.

The objective of this study was to determine the gender differences in psychological responses and sleep amongst adult respondents, of either gender, to the lockdown due to the corona virus epidemic during the year 2020.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in April-May 2020 during the lockdown due to the corona virus epidemic. A pre-tested and pre-validated questionnaire was administered via Google forms to adult respondents, of either gender, in the state of Maharashtra, Western India, using the chain sampling technique. Informed consent was taken on the Google forms. The data were adapted to Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and analyzed using SPSS statistical software Windows Version 25.0 (IBM Corporation, Armonk, NY, USA). The percentage of responses and the standard error of difference between two sample proportions were calculated. For continuous data, the standard error of difference between two means was calculated. 95% Confidence interval (CI) was stated as: [Mean-(1.96)*Standard Error)] - [Mean+(1.96)* Standard Error)]. The statistical significance was determined at $p<0.05$.

RESULTS AND DISCUSSION

There were a total of 774 respondents (397 females: 51.29% and 377 males; 48.71%). The mean age of female respondents was 24.38 +/- 6.68 years (95% CI: 23.73–25.04 years) while that for males was 25.32 +/- 8.14 years (95% CI: 24.50–26.14 years).

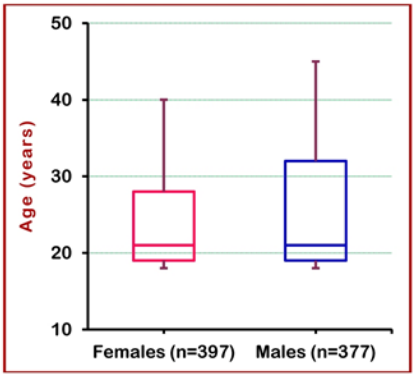

Fig-1: Box plot of age distribution of respondents

The minimum age, first quartile and median age were identical for males and females while the third quartile and maximum age was higher for males (Fig-1).

Table-1: Gender differences in demographic profile

Parameter	Females (n=397)	Males (n=377)	Z value	'p' value
Graduate & above	226 (56.92%)	239 (63.39%)	1.836	0.065
Married	278 (70.03%)	273 (72.41%)	0.733	0.465
Household members: 4 or less	233 (58.69%)	234 (62.07%)	0.960	0.337
Rooms in household: 2 or less	100 (25.19%)	115 (30.50%)	1.650	0.098
Indoor hobbies	204 (51.38%)	134 (35.54%)	4.441	<0.0001*

Z = Standard error of difference between two proportions; *Significant

The gender differences in educational attainment, marital status, size of household were not statistically significant. (Table-1) A significantly higher (Z=4.441; p<0.0001) number of female respondents reported having indoor hobbies, which would potentially act as coping mechanism during the lockdown and prevent a constellation of psychosomatic ailments.

Many studies have researched the health impact of deleterious behaviours (tobacco use, alcohol use, physical inactivity, self medication) and also the outcome of specific healthy behaviours (balanced diet, adequate sleep, personal hygiene). However, few studies have examined the health implications of engaging in enjoyable leisure activities that may also have beneficial properties. [13]

The negative psychological impact of stress can be buffered by involving oneself in multiple types of leisure activities or hobbies. [13] Leisure counselling helps in easing phobias, panics, stress and tension states, creates and sustains positive moods; limits the destructive demands of habits and impulses and also addresses therapeutic challenge of obsessions and compulsions. [14]

As compared to their male counterparts, significantly higher number of female respondents (Z=2.939; p=0.003) in the present study reported improved emotional attachment with friends and family as a result of the lockdown. However, significantly higher number of female respondents also reported increase in annoyance and irritability (Z=1.987; p=0.046), fear regarding getting infected with corona virus (Z=1.967; p=0.048), sleeping late at night (Z=5.165; p<0.0001) and sleeping in afternoons (Z=5.264; p<0.001). (Table-2). Though this pandemic has disrupted the life, economy and health of people, few researchers [15, 16] have studied the psychological impact of this pandemic.

In an online survey conducted in Italy during the lockdown in March 2020, respondents of either gender, aged 18-35 years, reported increased the usage of digital media near bedtime, going to bed early and waking up late, spending more time in bed but with reduced quality of sleep. [17] Young adults are likely to be heavy digital users and they are especially at risk for sleep disturbance. [18]

Table-2: Gender differences in psychological factors and sleep

Parameter	Females (n=397)	Males (n=377)	Z value	'p' value
Reduced concentration and efficiency at study or work	172 (43.32%)	138 (36.60%)	1.907	0.056
Improved emotional bonding with friends and family	190 (47.86%)	141 (37.40%)	2.939	0.003 *
Increase in irritability	104 (26.20%)	76 (20.16%)	1.987	0.046 *
Fear regarding getting infected	262 (65.99%)	223 (59.15%)	1.967	0.048 *
Information on Covid available	247 (62.22%)	236 (62.60%)	0.109	0.912
Increase in duration of sleep	250 (62.97%)	224 (59.42%)	1.014	0.312
Tend to sleep very late at night	284 (71.54%)	202 (53.58%)	5.165	<0.0001*
Sleep in the afternoons also	94 (23.68%)	156 (28.91%)	5.264	<0.0001*
Absence of co-morbidity	314 (79.09%)	304 (80.64%)	0.535	0.589

Z = Standard error of difference between two proportions; *Significant

CONCLUSION

This study has discerned gender differences in psychological responses and sleep as a result of the lockdown. Female respondents self-reported significant increase in annoyance and irritability, fear of getting infected with corona virus, sleeping late at night and sleeping in the afternoons as a result of the lockdown. On the brighter side, more female respondents had indoor hobbies that would potentially act as coping mechanism during the lockdown and more female respondents felt that the lockdown had significantly improved emotional bonding with friends and family.

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