A Study of the Impact of the COVID-19 Pandemic on Anxiety Levels of Young Adults in India

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ABSTRACT

BACKGROUND

Since the end of December 2019, when a cluster of pneumonia cases due to a novel coronavirus was reported from China, coronavirus disease (COVID-19) has rapidly gained pandemic proportions, leaving death and extensive lifestyle changes in its wake. This, along with economic standstill and social isolation has led to anxiety, especially among the susceptible young adult population. We conducted a survey to assess the prevalence of anxiety among the young adult population in India.

METHODS

A questionnaire consisting of 74 questions was floated via Survey Monkey among the Indian community using the chain-referral sampling method, targeting young adults between the ages of 18 and 34 years. The level of anxiety was assessed using the Generalized Anxiety Disorder (GAD-7) scale. Responses were tabulated and analysed using IBM SPSS Data Editor.

RESULTS

A total of 618 respondents completed the survey. There were 352 (57%) males, and 442 (72%) were living in an urban setting. Nearly 66% (405) hailed from Uttar Pradesh and Delhi. There were 190 students (31%), and 123 healthcare workers (20%) among others. 281 (46%) of these 618 young adults had some level of anxiety as per the GAD-7 scale, but only 120 (19.4%) had clinically significant anxiety (GAD-7 scores ≥ 5). 247 respondents (41%) said that television and newspaper reports added to their anxiety. Further, females were significantly more anxious than males (25.6% vs 14.8%; p 0.001). The prevalence of anxiety was also significantly different in urban and rural setting (21.7% vs 13.4%; p 0.02), in patients with presence of comorbidities versus healthy people (33.8% versus 17.5%; p 0.004) and in income loss versus stable income source (24.4% vs 14.8%; p 0.04). All these factors remained as independent predictors of anxiety after regression analysis. Interestingly, 78% of the young adults were eventually able to adjust to the lifestyle changes.

CONCLUSIONS

This survey confirms that young adults have impressionable minds and are prone to anxiety, which was prevalent in 46%. Female sex, urban setting, comorbidities, income loss and media reports were independent predictors of anxiety among the young adult Indian population.

KEY WORDS

Young Adults, Anxiety, COVID-19, Pandemic, Survey, Predictors

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BACKGROUND

Ever since the report of a cluster of cases of pneumonia due to a novel Coronavirus in Wuhan, China on 31st December, 2019, coronavirus disease (COVID-19) has taken the world by storm, leaving a lot of death and economic devastation in its wake. The novel coronavirus was named the severe acute respiratory distress syndrome coronavirus 2 (SARS-CoV-2), and it It was nearly two months later, on 11th March, that the World Health Organization (WHO) labelled COVID-19 as a pandemic.[1]

Most people infected with the coronavirus experience a mild respiratory "flu-like illness" with a complete recovery. However, the elderly population and those with comorbidities and heavy viral load experience a severe illness with a higher chance of mortality.[2]

To contain the coronavirus outbreak, many countries introduced a 'lockdown', limiting movement of their people. This was introduced in India first on 25th March, 2020 leading to an economic slowdown and loss of jobs and income for thousands of people across the country. COVID-19 is a new disease with new findings emerging constantly. This along with uncertainty about the future has led to varying levels of anxiety among people.

According to Erik Erikssons stages of psychosocial development, adolescents and young adults are considered separately due to differences in experiences, relationships and virtues. The lifetime prevelance of anxiety, depression and stress in the adolescent and young adult population ranges between 5% and 70%.[3] The WHO has defined adolescents as those between the ages of 10 and 19 years, and further young people as those between 10 and 24 years of age.[3,4] However in a study by Medly ML, young adults were taken as individuals between the ages of 22 years and 34 years.[5] According to Kinder and Sears, this young adult population is sensitive, highly reactive to their environment and vulnerable to change, which influences their reactions and behavior.[6]

COVID-19, being a new contagious disease with devastating global effects with respect to infectivity, case fatality and economic effects, has led to confusion along with anxiety and fear in the general public. This led us to study the impact of the coronavirus pandemic on the anxiety levels among the the young adult population of our country.

Objectives

1. To assess the impact of the COVID-19 pandemic on young adult Indians, focussing on the prevalence of anxiety.
2. To find the predictors of anxiety in this population.

METHODS

This is a cross sectional online survey which was administered using SurveyMonkey software**.** The links for the questionnaire was floated among the general population through Whatsapp messages and emails using the 'chain-referral sampling method', in which each respondent was asked to forward the questionnaire to as many of his/her contacts as possible, who then were expected to continue the same process.

Ethical Approval

The study was approved by the Institutional Ethics Committee (IEC code: 2020-128-IP-EXP-18 dated 30.04.2020).

Inclusion Criteria

All young adults bewteen the ages of 18 and 34 years, who consented to proceed and completed the online survey questinnaire were included in the study.[3,4,5]

Exclusion Criteria

1. Young adults with pre-existing psychiatric disorders were excluded from the study.
2. All survey forms without responses to the anxiety scale were also excluded.

Survey Questionnaire Details

All respondents had to read an informed consent form and click on 'agree' before proceeding to answer the questionnaire. Both English and Hindi versions of the same survey was floated simultaneously to increase the response rate. The questionnaire had questions relating to the demographic profile of the responder, including age, sex, educational status, occupation and geographical state in which he/she was residing in at the time. Other details asked for were the presence/ absence of comorbidities like diabetes melliuts, hyertension, heart disease, asthma or other pulmonary disease, cancer and immunocompromised state. Respondents had to comment on their type of income – salary, contractual or daily wage, and whether their income had been adversely affected due to the COVID-19 pandemic. Respondents were also asked whether telvesion, newspaper, Whatsapp and other media reports of the pandemic had added to their anxiety or not. Further questions dealt with the respondents abilty to adapt and adjust to the changing circumstances. A comment box was provided at the end of the survey for individual respondent opinion.

Prevalence of Anxiety and Estimation of Its Predictors

Prevalence of anxiety was assessed using the Generalized Anxiety Disorder (GAD-7) scale consisting of seven questions. Each question had to be graded by the respondent on a Likert scale from 0 to 3 based on the frequency of the corresponding symptom (0–not at all, 1–several days, 2–more than half the days, 3 – nearly every day). The total score for all seven questions was calculated, and respondents were classified into no anxiety (0), minimal anxiety (1–4), mild anxiety (5–9), moderate anxiety (10–14) and severe anxiety (15-21). Only those with score of 10 and above were defined to have clinically significant anxiety needing intervention. The GAD-7 has good reliability, criterion, construct, factorial and procedural validity and is commonly used as a screening tool and severity measure for generalized anxiety disorder as it is simple to understand, and can be self-administered by the respondent.[7] Various demographic and social factors were evaluated as predictors of anxiety in the young adult population by appropriate statistical analyses.

Statistical Analysis

All data was analyzed using the IBM SPSS statistics package for MacIntosh, Version 26 (SPSS Inc. Chicago, Illinois). Descriptive statistics with frequency analysis (percentages) was used for categorical variables, and relationships between categorical variables was established using the Chi-square test or Fisher exact test. A relationship was considered statistically significant if the two-tailed P-value was < 0.05. Further univariate and multivariate logistic regression analysis was used to establish the significant independent predictors for anxiety in our population.

RESULTS

A total of 618 respondents between the ages of 18 years and 34 years completed the survey, after clicking on their agreement to participate. Of these, 352 (57%) were males and 266 (43%) were females. Nearly 66% (405) young adults hailed from the two states of Uttar Pradesh and Delhi. However there was representation from all regions of India, with 48 respondents from other Northern states (Punjab, Haryana, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, Chandigarh and Rajasthan), 47 from the Western region (Gujarat and Maharashtra), 46 from the Eastern region (Bihar, Odisha and West Bengal), 35 from Southern region (Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Telangana) and 4 respondents from the North-Eastern region (Assam and Manipur). Most (72%) of the respondents (442) were living in an urban setting at the time of the survey.

Among the 618 respondents, 190 (31%) were students, 123 (20%) were healthcare workers including doctors, nurses technicians and other supporting hospital staff, 58 (9.4%) were professionals like lawyers, architects, technocrats and engineers, 43 (7%) were teachers, 33 (5.5%) were social or religious workers and 21 (3.5%) were businessmen. Only 2% (14) of the young adult population stated they were unemployed. (Fig. 1)

Most of the respondents (97%) had completed high school, and nearly 67% (406) were graduates and above. 65/618 young adults had comorbidities like diabetes mellitus, hypertension, hypothroidism and heart disease.

Further on, only 202/618 respondents (32.8%) accepted they were anxious about contracting COVID-19, but on the other hand nearly 351 (57%) were anxious that a loved one or friend would contract the disease. 220/618 young adults (36%) were anxious and afraid about losing their jobs and livelihood because of the pandemic. Out of the 618 young adults, 82 (14.6%) had contractual jobs, 84 (15%) young adults were daily wage earners, and only 14 (2%) respondents were unemployed. However, nearly 49% (287) claimed that their income had been adversely affected. Besides, 41% (247 respondents) stated that television and newpaper reports and Whatsapp messages only served to add to their anxiety.

After analysis of the GAD-7 scale it was found that a little less than half of the young adults (46%; 281/618) had some level of anxiety or the other. Only 337 (54.5%) had no anxiety at all (Total GAD-7 score of 0), and nearly 161 (26%) had minimal anxiety levels (GAD-7 score of 1-4). Another 80 respondents (13%) qualified to have mild depression, and 40 (6.5%) young adults had dangerously significant anxiety levels (25 with moderate depression and GAD-7 scores10-14; 15 with severe depression and GAD-7 scores 15-21). (Fig. 2) 120 of the total 618 respondents (19.5%) had clinically significant depression levels (GAD-7 cutoff above 5). Nearly 33% of the young adult population had sleep disturbances in the two weeks prior to the survey. However 476/618 young adults claimed that they had been able to adjust wholly or in part to their changing circumstances. As predicted, females were significantly more anxious than males (25.6% vs 14.8%; p 0.001) taking GAD scores of 5 and above as clinically significant anxiety. This difference was seen at all levels of anxiety – minimal (GAD-7: 1-4), mild (GAD-7: 5-9), moderate (GAD-7: 10-14) and severe anxiety (GAD-7: 15-21). (Fig. 3) It was interesting to note that significantly greater number of females were worried about a loved one contracting COVID-19 (63.5 % vs 51.7%; p 0.004). More females said they became more anxious with media and Whatsapp messages than males (44.7% vs 36.4%; p 0.05). Also a significantly greater number of females were able to adjust with the lifestyle modifications than males (80.8% vs 74.1%; p 0.037) (Table 1)

It was interesting to see that those living in cities were more anxious than their counterparts in villages (21.7% vs 13.4%; p 0.02). Young adults with comorbidities had higher levels of anxiety than those who were healthy (33.8% vs 17.5%; p 0.004), and those with income loss tended to be more anxious than the rest (24.4% vs 14.8%; p 0.004). Media reports significantly increased anxiety in the young adult population (p <0.001). However no significant correlation was found between anxiety levels and residing away from family (18.7% vs 19.7%; p 0.89), or living with elderly people aged more than 60 years (23.4% vs 17.6%; p 0.12) or children younger than five years (18.5% vs 19.7%; p 0.83). (Table 2)

After binary logistic regression analysis, female sex (p 0.03), urban setting (p 0.05), presence of comorbidities (p 0.007), income loss (p 0.01) and media reports (p <0.001) were found to be independent predictors of anxiety in the young adult population in India.

Sl. No.	Factors	Males (n=352)	Females (n=266)	P Value
1.	Rural setting	117 (33.2%)	54 (20.3%)	<0.001
2.	Anxious about contracting COVID-19	106 (30.1%)	96 (36.1%)	0.14
3.	Anxious about a loved one contracting COVID-19	182 (51.7%)	169 (63.5%)	0.004
4.	Anxious about loss of livelihood	127 (36.1%)	93 (35%)	0.80
5.	Reduction in income	170 (48.3%)	117 (44%)	0.36
6.	Anxiety worsened by media reports	128 (36.4%)	119 (44.7%)	0.05
7.	Ability to adjust to changes	261 (74.1%)	215 (80.8%)	0.04

Table 1. Differences in Factors Leading to Anxiety between Males and Females in the Young Adult Population

Sl. No	Predictors of Anxiety	Group A (A)	Group B (B)	P Value
1.	Females (A) vs Males (B)	68/266 (25.6%)	52/352 (14.8%)	0.001
2.	Urban (A) vs Rural setting (B)	96/442 (21.7%)	23/171 (13.5%)	0.02
3.	Presence of elderly (> 60y) at home (A) vs without elderly at home (B)	43/184 (23.4%)	76/432 (17.6%)	0.12
4.	Presence of children (<5y) at home (A) vs without children at home (B)	35/189 (18.5%)	84/426 (19.7%)	0.83
5.	Comorbidities (A) vs healthy (B)	22/65 (33.8%)	94/537 (17.5%)	0.004
6.	Income loss (A) vs no income loss (B)	70/287 (24.4%)	45/304 (14.8%)	0.004
7.	Living away from family (A) vs living at home (B)	23/123 (18.7%)	97/491 (19.7%)	0.89

Table 2. Predictors of Anxiety According to the GAD-7 (≥10)

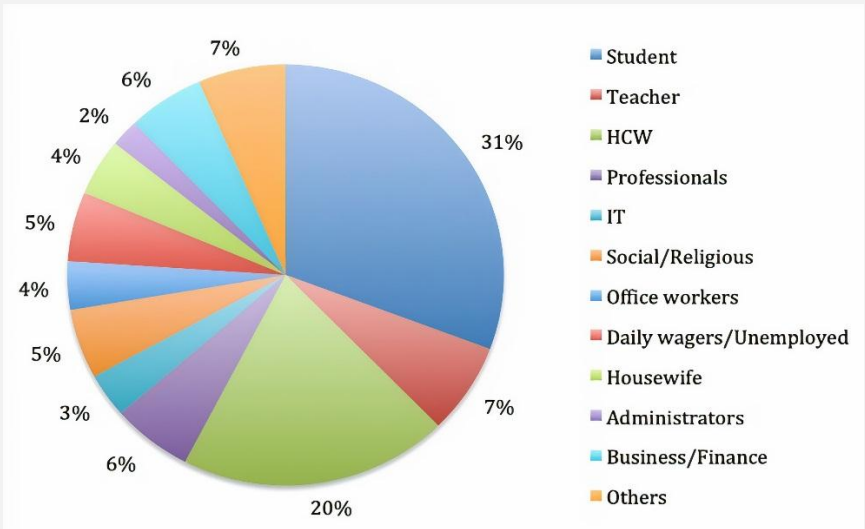

Figure 1. Distribution of Young Adult Population According to Their Occupation

(HCW – Healthcare professionals, IT – Information technology)

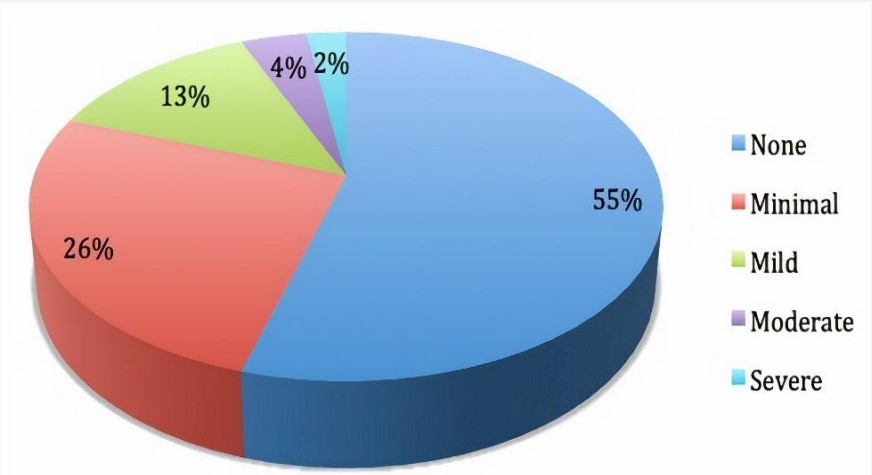

Figure 2. Distribution of Young Adult Population According to Their Levels of Anxiety as per the GAD-7 Scale

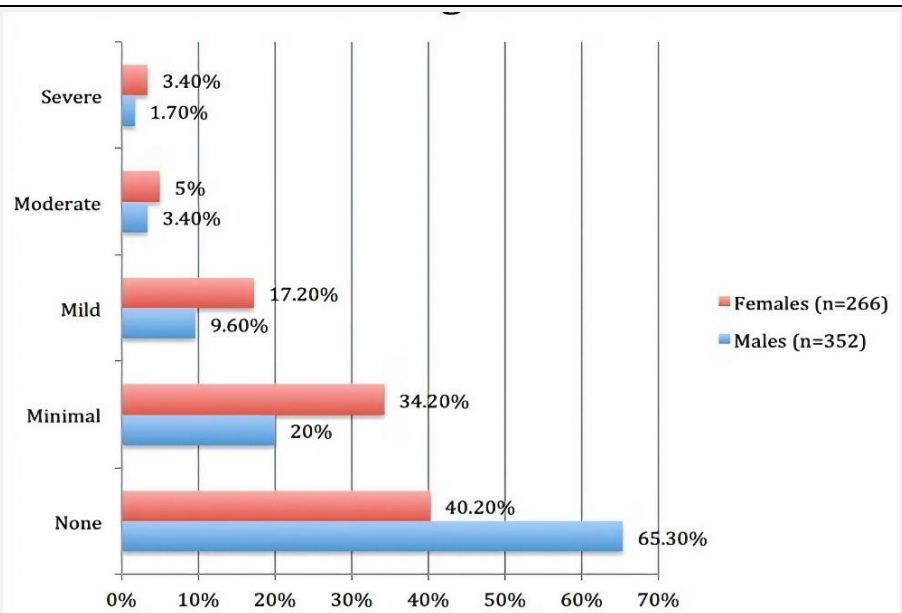

Figure 3. Differences between Males and Females with Respect to Levels of Anxiety According to the GAD-7 Scale

DISCUSSION

Pandemics are notorious for their rapidity of spread and for the death and economic devastation they leave in their wake. The COVID-19 pandemic is also similar. It took less than three months to spread globally, and has till date affected more than five million people worldwide and caused more than three lakh deaths. In our country alone, there are more than a million COVID-19 positive cases with nearly thirty thousand deaths. Though the mortality rate in India is still around 3%, there is widespread anxiety and fear among the people because the coronavirus is highly contagious, and encountering the disease at some time or the other is inevitable. Television reports and other media reports have only added to peoples anxiety levels. This tendency was also noted by Roy et al in their survey on COVID-19 awareness and anxiety on 662 individuals, though their survey catered only to the English reading population, who remain a minority in Nothern India. [8]

Most of our respondents were highly educated (67% graduates and above) and a majority of the others had completed their high school education (97% of 618), which is similar to the findings documented by Roy et al.[8] This may be because of selection bias as our survey would have been taken by the eduated young adults within the gambit of our chain-referral sampling method. It was also not possible to include more uneduated young people because of the prevailing 'lockdown' at the time. However, unlike their study data which comprised of nearly 50% health professionals, we had a more diverse population group with only 20% healthcare workers.[8]

Our survey results revealed that nearly 46% of the young adults were anxious to some extent about the COVID-19 pandemic. However, clinically significant anxiety level (GAD-7 score >5) was seen in 19.5% of the young adult population. This is very similar to the findings published from China during this COVID-19 pandemic where they documented anxiety in 24.9% of the college students. However, nearly 6.4% of our young adults had moderate and severe anxiety as per the GAD-7 scale, compared to only 3.6% in the Chinese study.[9] This may be because the survey was done earlier on before COVID-19 had become a pandemic of this proportion, and before extensive media coverage of world-wide mortality and economic slowdown.

A survey done in Mexico during the H1N1 pandemic in 2009-2010, showed that anxiety levels were higher when the pandemic was raging, and gradually reduced. They also noticed higher anxiety levels about bird flu and terrorism which was also receiving media coverage at the time.[10] Similar results were seen in a survey of 315 American college students, where they stated anxiety as being common.[11] A survey done on healthcare workers in Singapore during the COVID-19 pandemic revealed anxiety in 14.5 % of the participants.[12]

In our study, only 32.8% of the young adults were anxious about contracting COVID-19 (Compared to nearly 72% in the survey by Roy et al), but 57% reported being anxious about a loved one contracting the disease.[8] This is very depictive of a natural human tendency of altruism, in which people are more considerate of others with or without assurance of gain.[13] There are certain gender biases with women considered and expected to be more altruistic, which was corroborated by our study in which 63.5% women were anxious about a loved one contracting COVID-19, compared to only 51.7% of men (p 0.004). [14]

The gender bias with respect to anxiety is also well known, with women tending to worry and have more anxiety than men.[15,16] This has been highlighted in our survey with nearly double the number of females having anxiety compared to males (25.6% vs 14.8%; p 0.001). This gender difference persisted at all levels of anxiety. (Fig. 3). In a study among college students in the United States of America during the swine flu pandemic, they noted that women were more likely to be anxious and wash hands more frequently than men.[17] This gender bias may be due to women balancing multiple reposiblities at the same time, and in a patriarchal society like ours in India being responsible for all housekeeping matters and family, especially children. The pandemic, with its ensuing lockdown and school closures led to children and family members working from home, leading to added work and responsibility on the women-folk.

While analyzing our survey we noted that young adults with co-morbidities were significantly more anxious than healthy people (33.8% vs 17.5%; p 0.004). It is obvious that those with pre-existing diseases which tended to reduce their immunity like diabetes melliuts would be more likely to develop complications if infected with COVID-19. Those with bronchial asthma and other pulmonary diseases would also be more likely to suffer severe disease, adding to their levels of anxiety.

We found that those who had suffered losses in income because of the pandemic tended to be more anxious than those who had stable sources of income or salaries (24.4% vs 14.8%; p 0.004). This may be because a loss of income increases stress and uncertainty about the future, especially for those who are the bread-winners of the family. A population-based study from Canada concluded that reductions in household income was associated with a higher risk of developing mental disorders and even self-harm. [18]

Our study also interestingly revealed that people living in cities were significantly more anxious than those in villages (21.7% vs 13.4%; p 0.02). This may be because of the rapid spread of COVID-19 in major cities like Mumbai, Delhi and other state capitals. All the 'hot-spots' are also in major cities, sparking anxiety and fear among city dwellers. This aspect has not been dealt with in other studies, and could be explored in greater detail in a later survey.

Limitations

As the survey questionnaire had to be completed online it could be taken only by those with smartphones or laptops, and those who were educated enough to use them. Internet availabilty and connectivity would be a problem in the rural setting accounting for the significantly lower number of respondents from villages. Also, the representation of young adults from South India and the North-Eastern states was low in our study, which does not make the opinions representative for our entire country.

CONCLUSIONS

In our sample of young adult Indians, 46% had some level of anxiety or the other, with nearly 19.5 % respondents having clinically significant anxiety, with another 26% having minimal levels of anxiety. Females were significantly more anxious than males, and this difference was seen in all levels of anxiety. Media reports significantly worsened anxiety among the young people. Female sex, living in an urban setting, the presence of comorbidities, income loss, and media reports were found to be independent predictors of anxiety among the young adult Indian population.

As health professionals we need to realize that our young adult population has vulnerable and highly impressionable minds, easily affected by the lifestyle changes, economic slowdown, and social isolation caused by the COVID-19 pandemic.

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REFERENCES

[1] WHO timeline COVID-19. https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19.
[2] Coronavirus overview. https://www.who.int/health-topics/coronavirus#tab=tab_1.
[3] Sahoo S, Khess CR. Prevalence of depression, anxiety, and stress among young male adults in India: a dimensional and categorical diagnoses-based study. J Nerv Ment Dis 2010;198 (12):901-04.
[4] Adolescent health in the South-East Asia region. WHO. https://www.who.int/southeastasia/health-topics/adolescent-health.
[5] Medley ML. Life satisfaction across four stages of adult life. Int J Aging Hum Dev 1980;11 (3):193-209.
[6] Kinder DR, Sears DO. Public opinion and political action. In: Lindzey G, Aronson E, eds. The handbook of social psychology. 3rd edn. New York: Random House 1985:659-742.
[7] Spitzer RL, Kroenke K, Williams JBW, et al. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med 2006;166 (10):1092-7.
[8] Roy D, Tripathy S, Kar SK, et al. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian J Psychiatr 2020;51:102083.
[9] Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res 2020;287:112934.
[10] Jones JH, Salathé M. Early assessment of anxiety and behavioral response to novel swine-origin influenza A (H1N1). PLoS One 2009;4(12):e8032.
[11] Wheaton MG, Abramowitz JS, Berman NC, et al. Psychological predictors of anxiety in response to the H1N1 (Swine Flu) pandemic. Cogn Ther Res 2012;36:210-18.
[12] Tan BY, Chew NW, Lee GK, et al. Psychological impact of the COVID-19 pandemic on health care workers in Singapore. Ann Intern Med 2020;M20-1083.
[13] Feigin S, Owens G, Goodyear-Smith F. Theories of human altruism: a systematic review. J Psychiatry Brain Funct 2014;1:5.
[14] Harbaugh WT, Krause K, Linday SJ. Bargaining by children. ID 436504, SSRN Scholarly Paper, 1 March. Rochester, NY: Social Science Research Network 2003.
[15] Bahrami F, Yousefi N. Females are more anxious than males: a metacognitive perspective. Iran J Psychiatry Behav Sci 2011;5 (2):83-90.
[16] Kanadiya MK, Sallar AM. Preventive behaviors, beliefs, and anxieties in relation to the swine flu outbreak among college students aged 18-24 years. Z Gesundh Wiss 2011;19 (2):139-45.
[17] McLean CP, Asnaani A, Litz BT, et al. Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. J Psychiatr Res 2011;45 (8):1027-35.
[18] Sareen J, Afifi TO, McMillan KA, et al. Relationship between household income and mental disorders: findings from a population-based longitudinal study. Arch Gen Psychiatry 2011;68 (4):419-27.