International Journal of Community Medicine and Public Health
Shah AF et al. Int J Community Med Public Health. 2022 Oct;9(10):3804-3810
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20222575

Original Research Article

Assessment of the prevalence, risk factors of insomnia, and its effect on quality of life among young population of North region

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Received: 15 August 2022
Accepted: 16 September 2022

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ABSTRACT

Background: Insomnia is characterized as a complaint of inadequate sleep. Insomnia becomes a major public concern day by day which influences the quality of life of numerous individuals around the planet. The objectives of this study were to determine the prevalence and risk factors of insomnia in the general population and to determine the quality of life.
Methods: It was a cross-sectional observational study. Data were obtained from the general population by using a standard questionnaire, the ISI scale, and quality of life satisfaction scales were used.
Results: The prevalence rate of insomnia was 33%. A total of 88 subjects had insomnia. There was an association between insomnia and life style factors at significance p value ≤0.05. The associated factors were profession, education, marital status, lifestyle factors such as watching TV or phone before sleep, smoking, drinking alcohol, do not walk daily, family history of psychiatric disease, medical history, and psychiatric history. The average scoring for quality of life was about 50.34 in those who did not have insomnia as compared to 38.49 in those who had insomnia.
Conclusions: A one-third of the young population had insomnia. Quality of life is impaired due to insomnia. There must be education programs for young individuals to provide the information on promoting sleep.

Keywords: Alcohol, Insomnia, Smoking, Quality of life, Young population

INTRODUCTION

Insomnia is characterized as a complaint of inadequate sleep. Sleep is non-restorative and unrefreshing. It is due to the difficulty in initiating and sustaining sleep.[1] Insomnia acts as a clinical manifestation of some diseases and also occurs as a syndrome.[2] Young adults need to sleep for 7.0-8.5 hours. This duration is considered a proper restorative.[3] Insomnia brings some adverse results to the individual and also to society. It becomes a major public concern day by day which influences the quality of life of numerous individuals around the planet.[4] Insomnia is mostly two types according to duration: transients' insomnia and chronic insomnia. When the symptoms of insomnia remain for only a few days it is called transient insomnia. It is due to some stress, self-medication, jet lag, and due to some acute illness. Chronic insomnia is defined as the condition when insufficient sleep continues for one month or more time and also affects regular functioning.[5] Many factors which lead a normal person to insomnia are called predisposing factors that are mostly non modifiable in nature.[6] Insomnia is occurred due to biological factors, psychological factors, Behavioral factors, and environmental factors including genetics, individual personality traits which are responsible for physiological and cognitive hyperarousal.[7] Some factors that are responsible for triggering insomnia is called precipitating factors (stressful life event it involves any health, family work, or school issue). Perpetuating factors that turn acute insomnia into chronic insomnia.

It involved behaviour, thoughts, and coping strategies for example day time napping, and spending most of the time in bed.[8] if it continues for a long time it leads to some physical and mental problems. Individual's mood, behaviour, and concentration also alter. An individual with insomnia has decreased intellectual ability and cognitive functions which leads to impaired social and professional life. Deprived sleep increases the chances of dependence on alcohol, substance abuse, or drug dependence, and suicide. [9] As per the definition of the world health organization (WHO), the quality of life is individuals' attitude toward their position in life, within the setting of their cultural values, and according to their aims, assumptions, standards, and concerns. It explains the potential of the individual to maintain their wellbeing and satisfaction related to health, professional, and social working.[10] The different investigations were done in European and Western nations. The prevalence rate found was 19.7% in the United States, 21.4% in Canada, 37% in the UK, 46.8% in Portugal, 22.8% in South Korea, and 15.3% in Turkey.[11] The prevalence varies according to one population to population. Insomnia study was done majorly on elder people but very rare studies on the young community population. Insomnia is a significant public worry in the community that impacts the quality of life of an individual but it remains undiscovered until it prompts genuine complexity so it is necessary for early recognition to diminish the antagonistic result.

METHODS

Research design and subjects

The observational cross-sectional survey was conducted for a period of 6 months from 2020-2021. The 232 subjects were enrolled from the general population of Bathinda, District which is the North Western part of Punjab, India with the age group of 18-35 except those who had serious trauma, and cognitive impairment.

Sample size

The sample size was calculated using software EPI info version 3.01. It was based on the previous prevalence of insomnia of about 18.5% with a 95% confidence interval and 5% margin of error[12]. The sample size was calculated according to the finite population of 1388525 of Bathinda District. The sample size was calculated 232.

Material and procedure

The data was collected by using standard validated questionnaires by face to face interviews. The first part of the questionnaire consists of data about demographic detail, Age, gender, residence, marital status, income, occupation, habit related data (walking, smoking, alcohol, drinking tea, coffee at bedtime), history (family history of psychiatric disease, history of any co-morbidity and illness, psychiatric history) The second part consisted of insomnia severity index scale and quality of life satisfaction scale.

Insomnia severity index scale

The ISI (Insomnia severity index scale) was used for insomnia symptoms. It is a self-reporting screening measure of insomnia. It consists of 7 questions according to the diagnosis criteria of insomnia related to difficulty falling asleep, staying asleep, and maintaining sleep, problems waking up too early, degree of satisfaction, day time interfering in functioning. Each question is Likert type. The scoring range for each question is from 0-4. ISI was previously validated with good sensitivity and specificity and showed a 10 cut-off score for the community-based population.[13 -14] The quality of life, enjoyment, and satisfaction questionnaire-short form (Q-LES-Q-SF) is a self-report scale consisting of 14 items related to overall satisfaction and enjoyment related to health, mood, work, household and leisure activities, social and family relationships, daily functioning, sexual desire/interest/performance, economic status, vision, ability to get around physically, overall well-being, medications, and contentment.[13] Items were rated on a five-point Likert scale (“very poor,” “poor,” “fair,” “good,” “very good”), with higher scores indicating better enjoyment and satisfaction with life. The scoring of the Q-LES-Q-SF involves summing the first 14 items to yield a total score.[15]

Statistical analysis

Data collected from the community population was evaluated by using SPSS version 22. Data was represented using descriptive statistics using frequency and percentage. A Chi-square test was used to find an association between insomnia and various factors at a significance level of ≤0.05. Quantitative continuous data were compared by using the Non-parametric Mann-Whitney test.

RESULTS

Prevalence of insomnia

The result was concluded from 232 young individuals. Among the 232 individuals, 77 (33%) had insomnia, and 155 (67%) do not have insomnia as represented in Figure 1. The prevalence of insomnia symptoms was obtained as symptoms of difficulty initiating sleep were observed in 104 individuals, difficulty staying sleep in about 88 individuals, the problem regarding the waking up too early was observed in 99 individuals (Figure 1).

Sociodemographic distribution of data

The data was collected from 232 young individuals in the Bathinda District. Subjects were categorized as urban and rural residents. It can be seen from the table1, that 37.2% of individuals belonged to an urban area and 62.8%

belonged to a rural area, 49.6% were male and 50.4% were female.

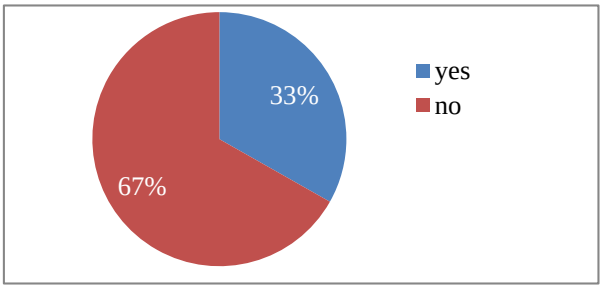

Figure 1: Prevalence of insomnia.

Table 1: Represent the sociodemographic data.

Variables		N	%
Area of residence	Urban	86	37.1
	Rural	146	62.9
Gender	Male	115	49.6
	Female	117	50.4
Profession	Employee	52	22.4
	Student	77	33.2
	Laborer	10	4.3
	Farmer	36	15.5
	Factory worker	0	0.0
	Housewife	29	12.5
	Teacher	12	5.2
	Others	16	6.9
Economics (income per month)	Upper class	60	25.9
	Middle class	114	49.1
	Lower class	57	24.6
Education	illiterate	6	2.6
	Primary	30	12.9
	Matriculation	58	25.0
	Higher	138	59.5
Marital status	Married	90	38.8
	Divorced/Widowed	3	1.3
	Single	139	59.9
Age	18-23	76	32.8
	23-28	74	31.9
	28-33	43	18.5
	Above 33	39	16.8

According to occupation, 22.4% of respondents were employees, 33.2% were students,4.3% laborers, 15.5% farmers, 12.5% were housewives, 5.5% teachers, and 6.9% respondents were belong to another profession. 25.9% of respondents belonged to the upper class, 49.1% of respondents belonged to the middle class, and 24.6% of respondents belonged to the lower class. According to education level, 2.6% of respondents were illiterate, 12.9% of respondents had primary education, 25.0% of respondents had matriculation and 59.5% of respondents had higher education, 38.8 % respondents were married, 59.9% respondents were single and 1.3% respondent were divorced and widowed (Table 1).

Table 2: Represent the distribution of lifestyle factors.

Variables		N	%
Watching TV phone before sleep	Yes	181	78.0
	No	51	22.0
Duration of watching	0 minute	50	21.6
	Less than 30 minute	21	9.1
	30-60 minutes	29	12.5
	1-2 hours	46	19.8
	2-3 hours	57	24.6
	More than 3 hours	29	12.5
Intake of liquid before going to bed	No	75	32.3
	Tea	17	7.3
	Coffee	17	7.3
	Milk	123	53
Diet taken	Vegetarian	119	51.3
	Non-vegetarian	113	48.7
Smoking	No	213	91.8
	Occasionally	7	3.0
	Daily	12	5.2
Alcoholic	No	170	72.6
	Occasionally	31	13.
	Daily	16	6.8
	Once a week	3	1.3
	2-3 times in week	12	5.1
Walk per day	Yes	158	68.1
	No	74	31.9
The stressful event in the family recently	No	136	58.6
	Death	29	12.5
	Accident	15	6.5
	Income loss	41	17.7
	Others	11	4.7
Family history of psychiatric disease	Yes	17	7.3
	No	215	92.7
Medical history	No	188	81.8
	Diabetes	5	2.2
	Hypertension	7	3.0
	Musculoskeletal disorder	7	3.0
	Others	25	10.8
Psychiatric history	No	196	84.5
	Depression	9	3.9
	Anxiety/Stress	25	10.8
	Others	2	0.9

Distribution of data according to lifestyle factors, medical and psychiatric history

Total of 232 subjects 78.2% were watching TV phone before going to sleep, 32.3% of respondents were not consuming any liquid, 7.3% respondents were consuming

tea, and 7.3% were consuming coffee and 53% were consuming milk before going to bed. 51.3% of respondents were vegetarian and 48.7% were no vegetarian. 3.0% were smoking occasionally and 5.2% of respondents were smoking daily. 13.0% drink occasionally, 6.8% drink daily, 1.3% drink once. 31.9% of respondents did not walk, 41.4% had a stressful family event, 7.3%% had a family history of psychiatric disease, 19.2% had a medical history, 15.5% had psychiatric history (Table 2).

Table 3: Represent the association between insomnia and socio-demographic data

Variables		Insomnia		Association			
		Yes	No	χ^2 test	df	P value	Significance
Area of residence	Urban	28	58	0.025	1	0.875	Not significant
	Rural	49	97				
Gender	Male	33	82	2.07	1	0.150	Not significant
	Female	44	73				
Age (years)	18-23	21	55	3.257	3	0.354	Not significant
	23-28	26	48				
	28-33	13	30				
	Above 33	17	21				
Profession	Employee	14	38	14.72	6	0.022	Significant
	Student	22	55				
	Labourer	2	8				
	Farmer	14	22				
	House Wife	18	11				
	Teacher	3	9				
	Others	4	12				
Economics (income per month)	Upper class	15	45	2.50	2	0.28	Not significant
	Middle class	42	72				
	Lower class	19	38				
Education	Illiterate	2	4	9.875	3	0.020	Significant
	Primary	13	17				
	Matriculation	27	31				
	Higher	35	103				
Marital status	Married	40	50	10.67	2	0.005	Significant
	Divorced/Widowed	2	1				
	Single	35	104				

Table 4: Represent the association between lifestyle factors and insomnia.

Variables	Output	Insomnia		Association			
		Yes	No	χ^2 test	df	P value	Significance
Duration of watching TV phone	0 Minute	18	32	13.35	5	0.020	Significant
	Less Than 30 Minute	5	16				
	30-60 Minutes	7	22				
	1-2 Hours	10	36				
	2-3 Hours	27	30				
	More Than 3 Hours	17	12				
Intake of liquid before going to bed	No	31	41	6.140	3	0.10	Not significant
	Tea	4	13				
	Coffee	8	9				
	Milk	34	89				
Diet taken	Vegetarian	35	84	1.573	1	0.21	Not significant
	Non-Vegetarian	42	71				
Smoking	No	66	147	15	2	0.001	Significant
	Occasionally	1	6				
	Daily	10	2				
Drink alcohol	No	53	117	15.1	4	0.004	Significant
	Occasionally	8	23				
	Daily	12	4				
	Once a week	0	3				
	2-3 Times in week	4	8				

Continued.

Variables	Output	Insomnia		Association			
Walk per day	Yes	45	113	4.953	1	0.026	Significant
	No	32	42				
The stressful event in the family recently	No	36	100	7.7	4	0.10	Not significant
	Death	12	17				
	Accident	7	8				
	Divorced	6	5				
	Income loss	16	25				
Family history of psychiatric disease	Yes	10	7	5.436	1	0.020	Significant
	No	67	148				
Medical history	No	48	140	27	4	0.000	Significant
	Diabetes	3	2				
	Hypertension	4	3				
	Muscoskeletal disorder	4	3				
	Others	18	7				
Psychiatric history	No	51	145	30	3	0.000	Significant
	Depression	7	2				
	Anxiety/stress	17	8				
	Bipolar disorder	2	0				

Table 5: Represent the association between quality of life and insomnia.

Qles Q domain	All subjects (n=232)		No insomnia (n=155)		Insomnia (n=77)		Maan Whitney test	P value
	Mean	SD	Mean	SD	Mean	SD		
Quality of life satisfaction scoring	46.40	10.39	50.34	9.00	38.49	8.35	-8.587	0

Association between Insomnia and various factors

There is association find between insomnia and sociodemographic factors such as profession, p value 0.022, education, p value 0.020, marital status, p value 0.005, as represented in table 3. Lifestyle factors such as watching TV phone before sleep, p value 0.020, smoking, p value 0.001, drink alcohol, p value 0.004, walk per day, p value 0.026, family history of psychiatric disease, p value 0.020, medical history, p value 0.000, psychiatric history, p value 0.000 as represent in (Table 4).

There is no association between insomnia and sociodemographic factors such as age, gender, economics, area of residence, intake of liquid before going to bed, diet taken and stressful events in the family as their calculate chi value is less than the table value and not significance at $p<0.05$ (Table 3-4).

Quality of life

Quality of satisfaction and enjoyment in life was determined by using the Q-les-Q scale. Nonparametric test Maan Whitney U test was used to determine the association. The total mean score was found 46.40, and the mean score value was observed at 50.34 (standard deviation of 9.0) in those who did not have insomnia more as compared to those who had insomnia at 38.4 (standard deviation of 8.35) with highly significant association was found at p value less than 0.05 (Table 5).

DISCUSSION

In this study, it was found that the prevalence of insomnia was 33%. A study by Chung et al reveal the prevalence of insomnia was about 30.08% in China.[7] Singareddy et al describes a prevalence of 9.3%.[16] and La et al described a prevalence of 10%. Ohayon et al showed a prevalence of 27.6%. Prevalence rates change with the different geographical areas and due to various factors. In this study prevalence rate found was higher than in other studies.

The strength of this study was that it was conducted on the general population and there were expanded possibilities of the variability of results acquired.[17-18] Age was not a significant factor in this study as there were only age criteria 18-35. In other studies, Yang et al also found that age was not significant.[19] Gender was also not significantly associated with insomnia. Prevalence rate was equal in both males and females. Similar result was found by Olfson et al, Choueiry et al they found that area of residence, economics status was not also significant with insomnia. The prevalence rate was equal in urban or rural residence having the different income.[4,20] The finding of this study was that beyond their gender the occupational, educational and marital status influence the prevalence of insomnia. The housewives had more prevalence of insomnia, the possible reason for that was family distress and emotional health. The prevalence was more in those who were married. One point of view is a negative marital relationship, the household environment influences sleep, conflicts in the relationship, demands

lead to stress, disturbing mental health as well as physical well-being. Regarding the education level, those who were illiterate and primary study had more prevalence of insomnia. One possible explanation was that a lower level of education leads to greater work-related stress and neglect of proper sleep hygiene.[21-22]

The finding of this study was that those who watched TV for more than 3 hours and 2-3 hours had a high prevalence of insomnia. The result by other researchers also found a similar result Serrano et al. The possible explanation for that was watching TV leads to exposure to bright light which contributes to delayed sleep induction due to the effect on sleep-inducing hormones.[23-25] The finding of this study was that dietary intake and liquid intake (coffee, tea, milk) before going to bed were not significantly associated with insomnia. But the opposite result was found by Ali et al drinking caffeinated beverages before sleep increased the rate of prevalence of insomnia. This was due to the biological effects of substance use.[11] The finding of this study was that alcohol was significantly associated with insomnia. The prevalence of insomnia was more in those who drink alcohol daily. A similar result was found by Wong et al, Ali et al and Singareddy et al. The possible explanation for that is drinking a large quantity of alcohol disturbs sleep quality and quantity. It affects sleep latency. Long-term and continue use leads to psychological disturbance. More future investigation is required to evaluate this link.[11, 16, 26] The prevalence of insomnia was more in those who smoke daily than non-smokers. A similar result was found by Blank et al and Chen et al.[21] The possible explanation for that is due to the stimulating nature of tobacco. There is a complex relationship between sleep disturbance and smoking.[27] The finding of this study was that, those who regularly walk had fewer chances of insomnia. Those who did not walk daily had more prevalence of insomnia. Similar results suggested by Xiang et al. Many human experimental studies proved that exercise or walking during day time increases deep sleep, and decrease the chances of awakening during the night. This improved the quality of sleep. Regular exercise and walking are necessary for the prevention of insomnia.[22, 28] The finding of this study was that who had a family history of psychiatric disease and had a psychiatric disease (anxiety, depression) was significantly associated with insomnia. Similar results by Weyerer et al and Choueiry et al. The mentally disturbed person has poor psychological functioning and poor health.[4,29] The prevalence of insomnia was more in those who had medical co-morbidities such as diabetes, hypertension, and musculoskeletal disorder. Similar result was found by Ali et al, and Basu et al that current medical disorders such as hypertension, diabetes, and asthma had more chances of developing insomnia. The explanation for that is medical co-morbidities lead to uncomfortable body sensations, psychological distress, and sometimes treatment side effects.[11,30,31] The quality of life enjoyment and satisfaction was good in those who did not have Insomnia as compared to those who had insomnia. Many other studies also found that insomnia impaired the quality of life.[32, 33]

CONCLUSION

It was found that One-third of the young population had insomnia. Education, profession, marital status, watching TV phone before sleep, alcohol intake, smoking, walking, family history of psychiatric disease, medical history, and medication history is highly associated with insomnia. It was concluded that those who did not have insomnia had a good quality of life as compared to those who had Insomnia. Strengthen this study; this study adds breadth to research about insomnia disorders among the general population. There is very rare research on insomnia among young individuals most of the research was focused on insomnia among older people or research are focused on patients in a clinical setting but insomnia has remained undiagnosed in public until it leads to serious complication. There must be educational programs for young individuals for providing information regarding promoting sleep.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Dragioti E, Levin LÅ, Bernfort L, Larsson B, Gerdle B. Insomnia severity and its relationship with demographics, pain features, anxiety, and depression in older adults with and without pain: cross-sectional population-based results from the PainS65+ cohort. Ann Gen Psychiatr. 2017;16(1):1-10.
2. Li RH, Wing YK, Ho SC, Fong SY. Gender differences in insomnia-a study in the Hong Kong Chinese population. J Psychosomat Res. 2002;53(1):601-9.
3. Hirshkowitz M, Whiton K, Albert SM, Alessi C, Bruni O, Don Carlos L, et al. National Sleep Foundation's sleep time duration recommendations: methodology and results summary. Sleep Health. 2015;1(1):40-3.
4. Choueiry N, Salamoun T, Jabbour H, El Osta N, Hajj A, Rabbaa Khabbaz L. Insomnia and relationship with anxiety in university students: a cross-sectional designed study. PloS One. 2016;11(2):e0149643.
5. Akram U, McCarty K, Akram A, Gardani M, Tan A, Villarreal D, et al. The relationship between type D personality and insomnia. Sleep Health. 2018;4(4):360-3.
6. Bethea TN, Zhou ES, Schernhammer ES, Castro-Webb N, Cozier YC, Rosenberg L. Perceived racial discrimination and risk of insomnia among middle-aged and elderly Black women. Sleep. 2020;43(1):208.
7. Chung KF, Kan K, Yeung WF. Assessing insomnia in adolescents: Comparison of Insomnia severity

index, Athens Insomnia scale and sleep quality index. Sleep Med. 2011;12(5):463-70.
8. Bastien CH, Vallières A, Morin CM. Precipitating factors of insomnia. Behav Sleep Med. 2004;2(1):50-62.
9. Short NA, Allan NP, Saulnier K, Preston TJ, Joiner TE, Schmidt NB. Factor mixture modeling of the insomnia severity index among psychology clinic outpatients. J Psychopathol Behav Assess. 2021;43(2):227-39.
10. Ishak WW, Bagot K, Thomas S, Magakian N, Bedwani D, Larson D, et al. Quality of life in patients suffering from insomnia. Innov Clin Neurosci. 2012;9(10):13-26.
11. Ali T, Belete H, Awoke T, Zewde F, Derajew H, Yimer S, Menberu M. Insomnia among Town Residents in Ethiopia: A Community-Based Cross-Sectional Survey. Sleep Disord. 2019;2019:1-7.
12. Panda S, Taly AB, Sinha S, Gururaj G, Girish N, Nagaraja D. Sleep-related disorders among a healthy population in South India. Neurol India. 2012;60(1):68-74.
13. Bastien CH, Vallières A, Morin CM. Validation of the Insomnia Severity Index as an outcome measure for insomnia research. Sleep Med. 2001;2(4):297-307.
14. Morin CM, Belleville G, Bélanger L, Ivers H. The insomnia severity index: psychometric indicators to detect insomnia cases and evaluate treatment response. Sleep. 2011;34(5):601-8.
15. Riendeau RP, Sullivan JL, Meterko M, Stolzmann K, Williamson AK, Miller CJ, et al. Factor structure of the Q-LES-Q short form in an enrolled mental health clinic population. Qual Life Res. 2018;27(11):2953-64.
16. Singareddy R, Vgontzas AN, Fernandez-Mendoza J, Liao D, Calhoun S, Shaffer ML, Bixler EO. Risk factors for incident chronic insomnia: a general population prospective study. Sleep Med. 2012;13(4):346-53.
17. La YK, Choi YH, Chu MK, Nam JM, Choi YC, Kim WJ. Gender differences influence over insomnia in Korean population: A cross-sectional study. PLoS One. 2020;15(1):e0227190.
18. Ohayon MM, Smirne S. Prevalence and consequences of insomnia disorders in the general population of Italy. Sleep Med. 2002;3(2):115-20.
19. Yang C, Liu W, Chen Y, Zhang J, Zhong X, Du Q, et al. Prevalence and risk factors for mental health symptoms in community epidemic prevention workers during the post pandemic era of COVID-19 in China. Psychiatr Res. 2021;304:114132.
20. Olfson M, Wall M, Liu SM, Morin CM, Blanco C. Insomnia and impaired quality of life in the United States. J Clin Psychiatr. 2018;79(5):9151.
21. Chen JH, Waite LJ, Lauderdale DS. Marriage, relationship quality, and sleep among US older adults. J Health Social Behav. 2015;56(3):356-77.
22. Xiang YT, Ma X, Cai ZJ, Li SR, Xiang YQ, Guo HL, et al. The prevalence of insomnia, its sociodemographic and clinical correlates, and treatment in rural and urban regions of Beijing, China: a general population-based survey. Sleep. 2008;31(12):1655-62.
23. Serrano S, Lee JW, Dehom S, Tonstad S. The association of TV watching to sleep problems in a church-going population. Family Commu Health. 2014;37(4):279-87.
24. Komada Y, Tanaka H, Yamamoto Y, Shirakawa S, Yamazaki K. Effects of bright light pre-exposure on sleep onset process. Psychiatr Clin Neurosci. 2000;54(3):365-6.
25. Custers K, Van den Bulck J. Television viewing, internet use, and self-reported bedtime and rise time in adults: implications for sleep hygiene recommendations from an exploratory cross-sectional study. Behav Sleep Med. 2012;10(2):96-105.
26. Wong WS, Fielding R. Prevalence of insomnia among Chinese adults in Hong Kong: a population-based study. J Sleep Res. 2011;20(1):117-26.
27. Blank M, Zhang J, Lamers F, Taylor AD, Hickie IB, Merikangas KR. Health correlates of insomnia symptoms and comorbid mental disorders in a nationally representative sample of US adolescents. Sleep. 2015;38(2):197-204.
28. Kim K, Uchiyama M, Okawa M, Liu X, Ogihara R. An epidemiological study of insomnia among the Japanese general population. Sleep J Sleep Res Sleep Med. 2000;23(1):41-7.
29. Weyerer S, Dilling H. Prevalence and treatment of insomnia in the community: results from the upper bavarian field study. Sleep. 1991;14(5):392-8.
30. Basu M, Chatterjee S, De A, Sinha D, Ahamed A, Misra R. A Study on Prevalence of Chronic Insomnia and it's Association with Medical Co morbidities among Patients Attending General Out Patient Department (OPD) of a Tertiary Care Hospital of Kolkata. India. Sleep. 2017;4(5):1042-7.
31. Abd Allah ES, Abdel-Aziz HR, El-Seoud AR. Insomnia: Prevalence, risk factors, and its effect on quality of life among elderly in Zagazig City, Egypt. J Nurs Edu Pract. 2014;4(8):52-69.
32. Bolge SC, Doan JF, Kannan H, Baran RW. Association of insomnia with quality of life, work productivity, and activity impairment. Qual life Res. 2009;18(4):415-22.
33. Hatoum HT, Kong SX, Kania CM, Wong JM, Mendelson WB. Insomnia, health-related quality of life and healthcare resource consumption. Pharmacoecon. 1998;14(6):629-37.

Cite this article as: Shah AF, Patil RK, Gupta R. Assessment of the prevalence, risk factors of insomnia, and its effect on quality of life among young population of North region. Int J Community Med Public Health 2022;9:3804-10.