

Insomnia among Patients with Schizophrenia: The Effect of Sleep Hygiene Guidelines

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Abstract Schizophrenia is a major psychiatric disorder that has a massive, long-lasting negative impact on the patients as well as society, the vast majority of patients with schizophrenia report insomnia, which tend to precede illness onset and can predict an acute exacerbation of psychotic symptoms. The aim of this study is to evaluate the effect of sleep hygiene guidelines on insomnia among patients with schizophrenia. A quasi-experimental design (pretest - posttest) was used to achieve this aim. The study was conducted at The Psychiatric and Addiction Treatment Hospital in Meet-Khalaf at Menoufia Governorate, Egypt. A Purposive sample of 65 patients with schizophrenia from inpatient unit of the above mentioned setting was recruited for this study and randomly divided into two equal groups study and control group. Three tools for data collection were used: Tool (I): Structure interview schedule to assess socio demographic data, Tool (II): Insomnia Severity Index (ISI) to assess the subject's level of insomnia, Tool (III): Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality. The study illustrated that there was a statistically significant improvement in quality of sleep among patients with schizophrenia in study group compared to control group. Conclusions: the sleep hygiene guidelines were effective in improvement of sleep quality among patients with schizophrenia in study group. Recommendation: Sleep hygiene guidelines should be routinely applied to all patients with psychiatric illness to improve their quality of sleep and relieve insomnia.

Keywords: patients with schizophrenia, insomnia, the sleep hygiene guidelines.

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1. Introduction

Adequate sleep is a fundamental to health which effects on many aspects of individual's life as emotional, cognitive, and psychomotor abilities and also influence person physically and psychologically [1]. Sleep help in strengthening the memory, enhance immune system, and help in prevention of many diseases as diabetes, hypertension, heart disease stroke, and mental disorders additionally improve quality of life [2,3].

Although most of psychiatric patients know sleep is vital, many do not prioritize sleep and so they reported symptoms of sleep depravity [4]. There was growing experimental evidence that the relationship between psychiatric disorders and sleep was complex and included bi-directional causation and is considered as a separate entity, which can co-occur with psychiatric disorders. The highest prevalence of insomnia is observed in psychiatric patients as comorbidity in conditions such as posttraumatic stress disorder, mania, and depression [5,6,7]. It is essential symptom in 30% to 90% of psychiatric disorders and it is seen in clinical practices and characterized by difficulty falling, remaining sleeping,

wake up in a mid-night and trouble going back to sleep [8,9,10,11].

Although sleep disturbance is not included in the diagnostic criteria for schizophrenia, it is consistently reported in those patients. That is unlike some psychiatric disorders such as major depression, generalized anxiety disorder, post-traumatic stress and bipolar disorder, sleep is not a core character of schizophrenia. However, sleep disturbances are common in schizophrenic patients and not studied [12,13]. Severe disturbance of sleep has been noticed to occur before the development of acute psychotic episode in schizophrenia and linked to worsening of psychosis symptoms and poorer quality of life, so schizophrenia and insomnia frequently co-occur [6,13,12,14].

Majority of patients with schizophrenia believed that pharmacotherapy could not an acceptable intervention, due to undesirable side effects and drugs interactions, they also reported that constant adherence on one type or dose of medication that is negatively affected their sleep. Cognitive and behavioral interventions had been perceived positively but patients were doubtful of their efficacy. So, active engagement in the intervention process was viewed positively, because it could provide a sense of autonomy [13].

The psychiatric nurse should provide sleep hygiene guidelines. By increasing sleep hygiene education, patients with schizophrenia could improve their sleep. Sleep hygiene: is a set of guidelines about sleep practices and environmental considerations that can either aid the quality and quantity of sleep [15,16]. Guideline: refers to a set of instructions to be followed by patients with schizophrenia to improve the knowledge and practices to reach good sleep quality. Sleep hygiene behaviors consisted of making the bedroom environment calmed to sleep, avoiding activities that stimulate anxiety and stress before bed, reducing tobacco consuming, reducing hunger and thirst before going to bed, regularly exercising and a balanced diet [17]. So, the researchers aimed at utilizing a non-pharmacological approach to improve the condition of insomnia among patients with schizophrenia.

1.1. Significance of the Study

The attainment of better sleep leads to an improvement in patients' mental condition such as improvement in concentration and consequently decreasing in length of hospital staying; decreasing health care costs as well as productivity will be improved. [18]. Sleep disturbance especially insomnia is commonly seen in clinical practice. It is appeared to be closely tied to schizophrenia [13]. Lack of awareness of the seriousness and potential morbidity associated with sleep problems especially in psychiatric patients such as schizophrenia has indicated the need for more research in this field [19]. Studies have shown that up to 80% of patients diagnosed with schizophrenia report symptoms of insomnia [20]. To the best of our knowledge, little data exists on insomnia in hospitalized psychiatric patient. Few studies have investigated clinical insomnia in psychosis, which clearly cause sleep disturbance and therefore present targets for intervention.

A psychiatric nurse was well positioned to educate patients about healthy sleep habits and to recommend non-pharmacological strategies. This research is based on the benefits that arise from the use of sleep hygiene guidelines. These include the improvement in the sleep quality and decreasing in the severity of insomnia.

1.1.2. Aim of the Study

Aim of the Study: to evaluate the effect of sleep hygiene guidelines on insomnia among patients with schizophrenia

1.1.3. Research Hypotheses

1- There will be a decrease in severity of insomnia after applying guidelines of sleep hygiene among patients with schizophrenia in study group compared to control group.

2- There will be improving in quality of sleep among patients with schizophrenia in study group compared to control group.

Theoretical and operational definitions of the studied variables

Insomnia is theoretically defined as difficulty falling asleep, staying asleep or nonrestorative sleep and complaint of inadequate or poor-quality sleep; despite adequate opportunity and circumstance to sleep [20]. Insomnia in the present study is operationally defined as the total score or levels of insomnia which is measured by Insomnia Severity Index (ISI).

Sleep hygiene is theoretically defined as a variety of different practices and habits that are necessary to have good nighttime sleep quality and full daytime alertness. Sleep hygiene in the present study is operationally defined as the total score of Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality.

2. Methods

2.1. Research Design

A quasi experimental research (pretest - posttest) design was utilized to fulfill the aim of this study.

2.2. Setting

The study was conducted at The Psychiatric and Addiction Treatment Hospital in Meet-Khalaf that affiliated to the Ministry of Health at Menoufia Governorate, Egypt.

2.3. Sample Size

The sample sizing adopts that the appraised effect size is 5 and the standard deviation of result variable is 10. To accomplish 80% power to detect this difference with a significance level of 0.05 by the equation: $n = [(Z\alpha/2 + Z\beta) 2 \times 2(\sigma)^2 / (\mu_1 - \mu_2)^2]$ it is estimated that 25 subjects per group would be required. By means of a withdrawal/non-evaluable subject rate of 10% a total of 25 subjects per group, so that the total sample size of 65 subjects would be included in the present study.

2.4. Subjects

A purposive sample of 65 schizophrenic patients from inpatient of the above mentioned setting was recruited for this study. The study sample was divided into two groups 35 patients in study group and 30 patients in control. The study group (I) received a structured education guidelines about sleep hygiene in addition to routine hospital care. Control group (II) received only routine hospital care. The researcher deal with the control group first, to prevent result contamination and bias. They were chosen based on the subsequent power analysis and inclusion criteria

Inclusion criteria

Patients were suitable for study participation when they had the subsequent criterion:

- a) Medically diagnosed schizophrenia
- b) Both sexes
- c) Age from 18-60 years
- d) Able to cooperate and communicate to participate in the study.

2.5. Tools of Data Collection

Based on the review of the related literature three tools were utilized by the researcher to achieve the aim of the study: as the following:

Tool (I): Structure Interview Schedule:

This questionnaire was developed by the researcher based on pertinent literature to assess socio-demographic

characteristics including patient's age, sex, level of education, marital status, working, and smoking.

Tool (II) Insomnia Severity Index

It was developed by Charles M. Morin, 2001 [21]. It was utilized to assess the subject's level of insomnia. The Insomnia Severity Index has seven questions. The ISI comprises seven items assessing the perceived severity of difficulties initiating sleep, staying asleep, and early morning awakenings, satisfaction with current sleep pattern, interference with daily functioning, noticeability of impairment attributed to the sleep problem, and degree of distress or concern caused by the sleep problem.

Scoring system:

Each item was scored on a range from one to four (one means no problem and four means very severe problem). This results in a field score ranging from 0 to 28, with a higher score representing a bad result on every domain.

The total score is interpreted as: -0-7 indicated No clinically significant insomnia, 8-14 indicated sub threshold insomnia, 14-21 indicated Clinical insomnia (moderate severity) and 22-28 indicated Clinical insomnia (severe).

Tool (III) Pittsburgh Sleep Quality Index (PSQI)

It was developed by Buysse et al., (1989) [22]. It is a 19-item questionnaire evaluating sleep quality and disturbances over the past month. The first 4 items are open questions, whereas items 5 to 19 are rated on a 4-point Likert scale. Individual items scores yield 7 components.

Scoring system:

A total score, ranging from 0 to 21, is obtained by adding the 7 component scores. A score > 5 suggests poor sleep quality. The psychometric properties of the PSQI have been documented in multiple studies, including one with a French-Canadian sample. The PSQI was used because it measures a construct (sleep quality) that is related to insomnia but a construct that is broader than insomnia severity.

Validity of the tools: The content validity of the tools were tested by a panel of five experts specialized in psychiatric Nursing.

Reliability of the tools: The reliability of all tools was tested by intra class reliability coefficient. It was 0.9 for tool I and 0.80 and Cronbach's alpha above 0.80 for tool II and the internal consistency of tool III was 0.87 and test-retest was 0.90.

Administrative approval: Before starting the study, an administrative approval was obtained from directors of psychiatric hospital after explanation of the purpose of the study.

2.6. Ethical Consideration

Permission to conduct the study was obtained from the hospital authorities of Meet Khalaf psychiatric hospital. Prior to the initial interview, the researchers introduced themselves to patients and their relatives and explained the purpose and nature of the study, and then an informed consent was obtained from participants who accept to participate in the study. The researchers emphasized that participation in the study is entirely voluntary and withdrawal from the study would not affect the care provided; anonymity and confidentiality were assured through coding the data.

2.7. Pilot Study

A pilot study was carried out on 10 % of patients representing the study sample to test the feasibility and clarity of the used tools; modifications were done based on the results. The sample included in the pilot study was excluded from the final study sample.

2.8. Procedure of Data Collection

- Data were collect over a period of 4 months from the beginning of December, 2018 to March, 2019. The researcher collected the data during the morning at two days/week from 10 AM to 11.5 PM., the subjects of study group(35) were divided into 4 groups; each of them consisted of 8 to 9 patients (each group took four sessions). Each session lasted for 60-90 minutes, depending on the response of patients. The data in the current study was collected through three phases: assessment phase, implementation phase and evaluation phase.

I. Assessment phase

An extensive literature related to the study was done, including electronic dissertations, available books, articles, doctoral dissertations, research and peer interaction, and ideas from external sources and periodicals. A review of literature to formulate a knowledge base relevant to the study was also done.

- A comfortable, place was chosen for the interviewers. Orientation was done about the purpose of the study and content of the study

- All subjects who were met the inclusion criteria were included in the study; the researcher introduced herself to them, provides verbal explanation of the study and answered all related questions.

- All Patients of both groups were interviewed individually and the researchers initiated data collection by assessing socio-demographic data, then assess the severity of insomnia and assess quality of sleep was performed using previous illustrated tools.

II-Implementation phase:

For study group: Sleep hygiene guidelines divided into 4 sessions. Each session lasted for one hour at least and has a set of specific objectives. This was achieved through several teaching methods as group discussion, lecture, role playing, posters and colored pictures were used as media to the patients about sleep hygiene as avoid (getting into bed when you are hungry or in a very full stomach or thirsty, no naps, no noise, make sure to arrange the room and bed before going to sleep with a dim light at night.

- At the end of each session summary, feedback, further clarification was done for vague items and homework activity for the following session.

Content of the nursing intervention sessions:-

Short description of the sleep hygiene guidelines sessions employed in the study is discussed below.

Session 1: involved developing a trusting relationship with the patients and encouraging them to discuss their opinions, expectations, and specific needs.

Session 2: concerned with knowledge about, definition of adequate sleep and signs of healthy sleep.

Session 3: concerned with definition of insomnia, and its criteria.

Session 4: concerned with Sleep hygiene guidelines

- Avoid technological sleep thieves (mobile phones, TV). They lead to delayed circadian rhythm
- Use your bed for sleep only
- Stick to a bedtime schedule even during weekends.
- The bedroom should be cool, Avoid noise, bright light when sleeping
- Sleep when sleepy, no clock watching. If you can't sleep after 30 minutes in bed get up and do something relaxing, then return to sleep.
- Make your bedroom is arranged.
- Manage your thoughts and fear and replace unrealistic worries to more productive thoughts.
- Relaxation techniques for better sleep
- Avoid mentally stimulating arguments before going to bed.
- Taking a shower, meditation, and listening to music.
- Herbal teas like chamomile and passion flower help the patient to relax
- Dark chocolate: Contains serotonin which relaxes the mind and body
- Warm glass of milk (may add honey to make it sweet)
- Bananas: Contain magnesium and potassium, which serves as a relaxant.

For control group: the patients received routine hospital care only as taking medication according to doctor prescription.

III-Evaluation phase:

The last phase in which the researcher assess the achievement of the aim of the study through reintroducing the research tools (posttest) for both experimental and control groups post intervention to evaluate the effectiveness of sleep hygiene intervention sessions among the experimental group.

2.9. Statistical Analysis

The data collected were tabulated & analyzed by SPSS (statistical package for the social science software) statistical package version 20 on IBM compatible computer. Two types of statistics were done:

1) **Descriptive statistics:** were expressed as mean and standard deviation (X+SD) for quantitative data or number and percentage (No & %) for qualitative data.

2) **Analytic statistics:**

1. Student t- test: is a test of significance used for comparison between two independent groups of normally distributed quantitative variables.
2. Fisher's Exact Test: It is the test of significance used to study association between two qualitative variables.
3. ANOVA test: is a test of significance used for comparison between more than two independent groups of normally distributed quantitative variables.

3. Results

Table 1: Showed that, the mean age of studied sample was 39.25 ± 13.81 & 39.80 ± 9.78 in study & control group respectively. Most of studied sample were male (88.6% in study group & 86.7 in control group). In relation to marital status, less than half were married 40% in study group, while half of them in control group were married 50%. In relation to educational level and Occupation 60% & 80% of studied sample (study and control group) had primary education & were working respectively. More than half of study group were smoker (57.1%) while nearly half of control group were smoker (46.7%).

Table 1. Distributions Of Sociodemographic Characteristics Of The Studied Groups

Demographic characteristics	Studied groups				χ^2	P value
	Study group (n=35)		Control group (n=30)			
	NO.	%	NO.	%		
Age (years):					t- test = 0.18	0.85 NS
Mean±SD	39.25 ± 13.81		39.80 ± 9.78			
Range	19.0 – 60.0		25.0 – 60.0			
Gender:					0.05	1.0 NS
Male	31	88.6	26	86.7		
Female	4	11.4	4	13.3		
Marital status:					4.20	0.24 NS
Single	15	42.9	12	40.0		
Married	14	40.0	15	50.0		
Widowed	4	11.4	0	0.0		
Divorced	2	5.7	3	10.0		
Education level:					3.16	0.20 NS
Illiterate	8	22.9	4	13.3		
Primary	21	60.0	24	80.0		
University	6	17.1	2	6.7		
Occupation:					3.03	0.08 NS
Working	21	60.0	24	80.0		
Not work	14	40.0	6	20.0		
Special habits:					0.71	0.39 NS
Smoker	20	57.1	14	46.7		
Non Smoker	15	42.9	16	53.3		
Number of cigarettes per day:					3.50	0.32 NS
One package	13	37.1	9	30.0		
Two package	4	11.4	5	16.7		
Others	3	8.6	0	0.0		
Non Smoker	15	42.9	16	53.3		

* Fisher's Exact Test, t: student's t test.

Figure 1: Revealed that there a was significant decreasing of mean Insomnia Severity Index scores in the study group after intervention than before (19.42±3.1 to be 5.97) and the mean Insomnia Severity Index scores among control group from 18.26 to 14.56 respectively.

Figure 2 illustrated that there was decrease of Pittsburgh Sleep Quality Index (PSQI) scores (from 15.24 to 4.57 & 15.13 to 13.06) among study and control groups pre and post intervention respectively.

Table 2 showed that there was statistical relationship between the baseline global score of PSQI among the

studied group and their demographic characteristics regarding to age, Occupation P (0.003, 0.02 & 0.03, 0.01) respectively.

Table 3 showed that there was no statically significant relationship between the baseline Insomnia Severity Index scores among the studied group and their demographic characteristics except age there was relation ship P(0.005 S & 0.04 S) in study & control group respectively.

Figure 3 showed that there was a positive correlation between Insomnia Severity Index scores and global score of PSQI among the studied group.

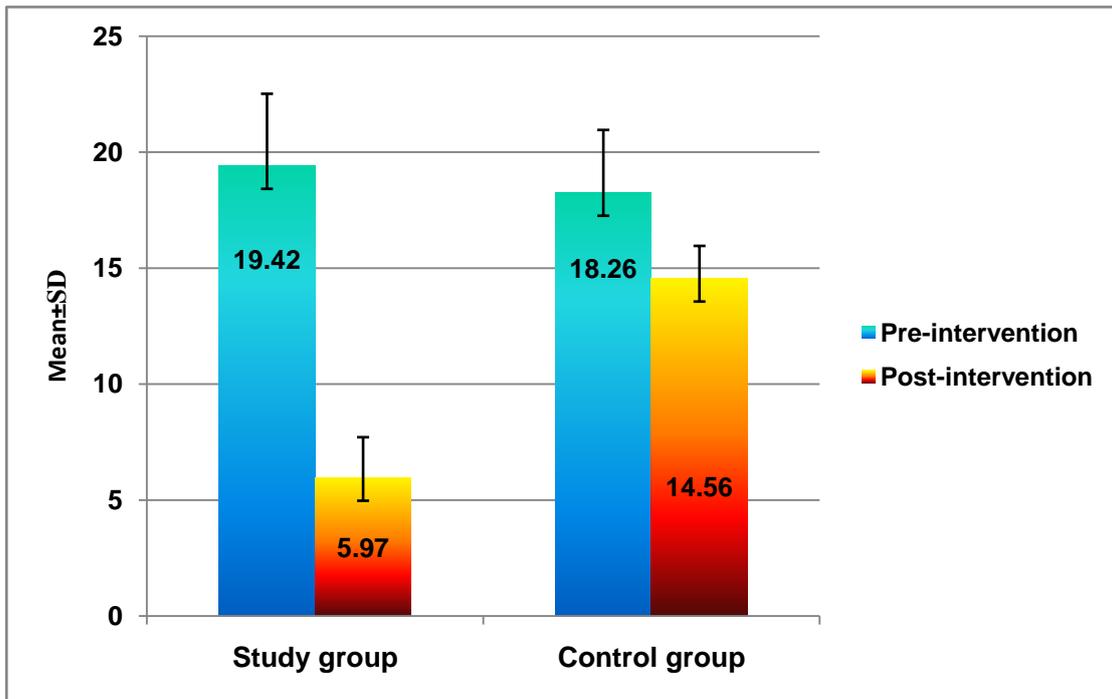


Figure 1. Means and Standard Deviation Of Insomnia Severity Index Scores Among Study And Control Groups Pre And Post Intervention

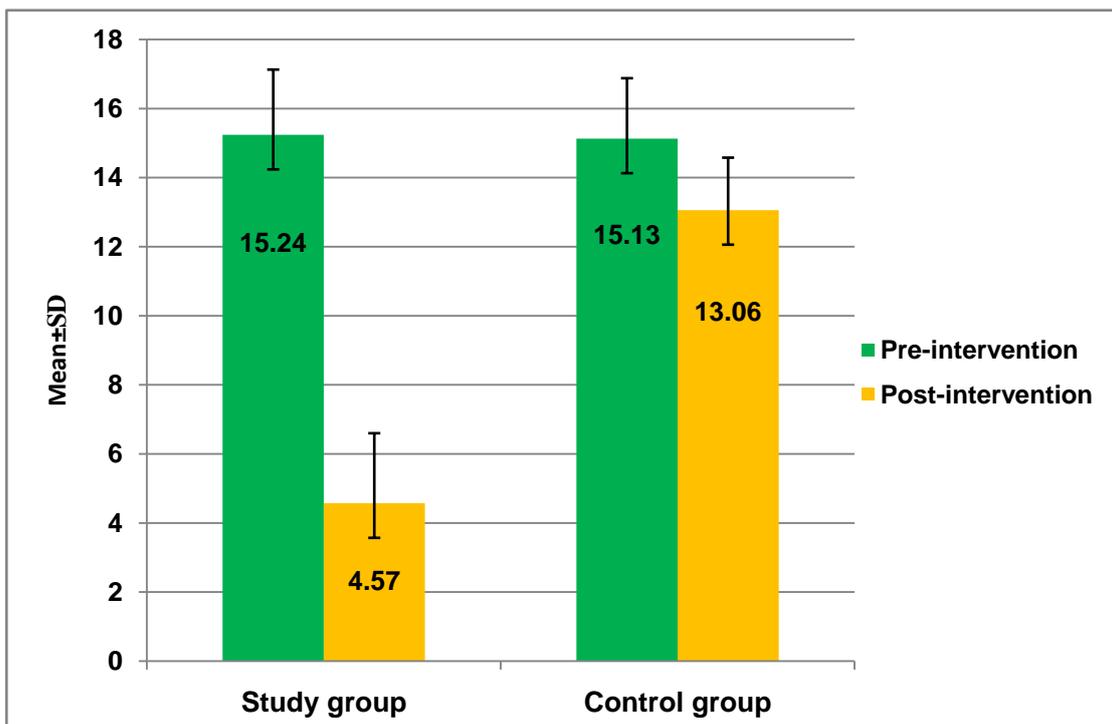


Figure 2. Comparison Of The Pittsburgh Sleep Quality Index (PSQI) Scores Among Study And Control Groups Pre And Post Intervention

Table 2. Relationship Between The Baseline Global Score Of PSQI Among The Studied Groups And Their Demographic Characteristics

Demographic characteristics	Global score of PSQI of study group (n=35)	Global score of PSQI of control group (n=30)
	Mean±SD	Mean±SD
Age (years):	r= 0.49	r= 0.30
Test of sig.	Spearman's rho	Spearman's rho
P value	0.003 S	0.02 S
Gender:		
Male	15.96±1.83	15.03±1.73
Female	15.75±2.62	15.75±2.06
Test of sig.	t=0.21	t=0.74
P value	0.83 NS	0.46 NS
Marital status:		
Single	15.26 ±2.08	14.75 ±2.26
Married	16.35 ±1.82	15.46 ±1.40
Widowed	17.0±1.15	0.0±0.0
Divorced	16.0±0.0	15.0±1.0
Test of sig.	F=1.31	F=0.54
P value	0.28 NS	0.58 NS
Education level:		
Illiterate	17.50 ±0.92	16.75 ±1.50
Primary	15.80±1.74	15.0±1.69
University	14.33±1.96	13.50±0.70
Test of sig.	F=6.52	F=2.98
P value	0.004 S	0.06 NS
Occupation:		
Working	16.47±1.69	15.50±1.56
Not work	15.14±1.95	13.66±1.86
Test of sig.	t=2.14	t=2.48
P value	0.03 S	0.01 S
Special habits:		
Smoker	16.45±1.79	15.35±1.78
Non Smoker	15.26±1.86	14.93±1.86
Test of sig.	t=1.89	t=0.64
P value	0.06 NS	0.52 NS

F: ANOVA.

Table 3. Relationship Between The Baseline Insomnia Severity Index Scores Among The Studied Groups And Their Demographic Characteristics

Demographic characteristics	Insomnia Severity Index scores of study group (n=35)	Insomnia Severity Index scores of control group (n=30)
	Mean±SD	Mean±SD
Age (years):	r= 0.43	r= 0.27
Test of sig.	Spearman's rho	Spearman's rho
P value	0.005 S	0.04 S
Gender:		
Male	19.45±3.11	18.15±2.43
Female	19.25±3.50	19.0±2.76
Test of sig.	t=0.12	t=0.57
P value	0.90 NS	0.56 NS
Marital status:		
Single	19.33 ±1.98	16.91 ±2.90
Married	18.57 ±3.17	19.26 ±1.86
Widowed	19.0±2.30	0.0±0.0
Divorced	27.0±0.0	18.66±4.04
Test of sig.	F=6.41	F=2.88
P value	0.002 S	0.07 NS
Education level:		
Illiterate	21.13 ±1.60	20.50 ±0.57
Primary	19.50±2.93	18.50±2.75
University	18.90±4.79	17.87±3.53
Test of sig.	F=1.25	F=1.70
P value	0.29 NS	0.20 NS
Occupation:		
Working	20.57±3.69	18.37±2.53
Not work	18.66±2.45	17.83±3.54
Test of sig.	t=1.83	t=0.43
P value	0.07 NS	0.66 NS
Special habits:		
Smoker	20.15±2.96	18.42±2.84
Non Smoker	18.46±3.13	18.12±2.65
Test of sig.	t=1.62	t=0.30
P value	0.11 NS	0.76 NS

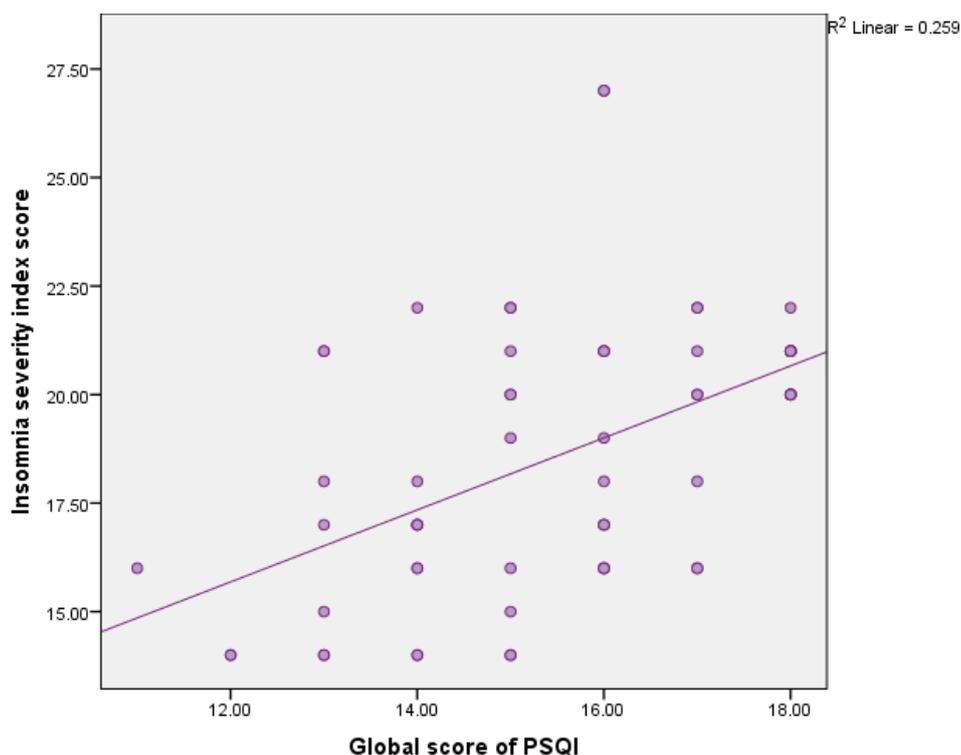


Figure 3. Correlation Between Insomnia Severity Index Scores And Global Score Of PSQI Among The Studied Group

4. Discussion

Schizophrenia and sleep disturbance as insomnia have negative effect on psychiatric patients' health. Sleep disturbance affect social and cognitive functioning, and consequently are probable to participate in a critical manner to the daily challenges specially patients with schizophrenia.

The majority of studied sample was male. This result was the same line Parekh [23] who reported that schizophrenia affects men and women about equally but may have an earlier onset in male. More than half of study group were smoker while nearly half of control group were smoker. This result was the same line with Buysse, 2013, [24] who studied the risk factors of insomnia, he stated that heavy smoking is considering as risk factor of sleep disorder. This result applied on the current research because the majority of study group had smoked

Regarding to insomnia ; the present study noticed that the majority of studied sample in study and control group had moderate insomnia level according to Insomnia Severity Index (ISI)scores before applying guidelines of sleep hygiene which clarified insomnia as difficulty falling asleep, difficulty staying asleep ,problems waking up too early, impairing the quality of life with sleep problem. This result was on the same line with National Institute of Health, 2016 and Punnoose et al 2012 [25,26] who knows insomnia as alertness, in which people have disorder sleeping. They may have problem falling asleep, or remaining asleep as wanted. It is characteristically followed by daytime sleepiness, decrease level of energy, irritability, and change in mood. It may result in an increased risk trauma, moreover problems in concentration and learning. While post application of sleep hygiene guidelines, the current study revealed that the study group had no insomnia after application of sleep hygiene guidelines, and the mean (ISI) score decreased,

this indicate the effectiveness of sleep hygiene guidelines sessions .This result was consistent with the, Qaseem and Ellis, as in [27,28] who studied management of chronic insomnia disorder, they illustrated that dealing with sleep disorder by changing behaviors of sleep and follow tips of sleep hygiene as decreasing amount of caffeine , nicotine intake, reducing daytime napping, keeping environment quiet and dark lead to promotion of sleep. The researchers explained that problem in sleeping affect individual 'health by decreasing the immune system expose them to disease and impaired quality of life, while post application of sleep hygiene guidelines, the sleep pattern improved when the patients follow instructions, the patients can sleep comfortably.

Regarding to insomnia according to Pittsburgh Sleep Quality Index (PSQI) scores; the mean score was higher in study and control group pre intervention which indicated poor quality of sleep .This result was the line with Chan, et al, 2017 [29] who sleep in schizophrenia: a systematic review and meta-analysis of polysomnographic. They stated that sleep efficiency has been found to be lower on average in groups with schizophrenia. While post application of sleep hygiene to study group, the Pittsburgh Sleep Quality Index (PSQI) scores decreased compared to control group. This clarifies the effectiveness of sleep hygiene guidelines sessions which was within the need and interest of the participants. This result was agreement with Jin Ju & Woo 2016 [30] who studied the effects of sleep hygiene program on sleep quality in the elderly women; they stated that the experimental group showed lower sleep quality score than the control group, which indicated elevated sleep quality after application of a sleep hygiene education to insomnia.

Regarding to insomnia and quality of sleep correlation. The present study showed that there was a positive correlation between Insomnia Severity Index scores and

global score of PSQI among the studied group. This result was the same line with Khalladi et al, 2019 [31]. who studied the inter-relationship between sleep quality, insomnia and sleep disorders, they reported that more than half of study had poor sleep quality, when these patients had sub threshold insomnia , also the researchers stated that there was positive relation between insomnia and quality of Sleep. The researchers explained that as the score of Insomnia Severity Index increase, as the PSQI increase which indicated the bad sleep quality, also sleep disorder can change quality of sleep.

Regarding to relationship between Insomnia Severity Index scores and their demographic characteristics the current study showed that there was no statically significant relationship between the baseline Insomnia Severity Index scores among the studied group and their demographic characteristics except age there was relationship in study & control group respectively. This result was the same line with Jinsong Tang, et al., 2017 [32] who studied "Gender and Regional Differences in Sleep Quality and Insomnia". They found there were no significant gender differences in other two PSQI components and daytime dysfunction. While females had a higher PSQI total score than males.

5. Conclusion

The sleep hygiene guidelines were effective in improvement of quality of sleep among patient with Schizophrenia in study group.

6. Recommendation

A psychiatric nurse was well positioned to educate psychiatric patients about healthy sleep habits as recommended non-pharmacological strategies and application of sleep hygiene guidelines routinely for managing insomnia among psychiatric patients.

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Conflict of Interest

The authors declare no conflict of interest.

References

- [1] Orzech, K., Salafsky, D, and Haimalton, L. (2011). The state of sleep among college student at a large public university, J American college health, 59(7): 612-619.
- [2] Tahil, F, Ajaltouni, J, Ghanour, H, Abu-mohammed, A and Kobeissy, f, (2018). Insomnia in hospitalized psychiatric patients. prevalence and associated factors. Neuro psychiatric disease and treatment. 14, 969-975.
- [3] Faraklas, I, Holt, B, Txan, S, Lin, H, Sable, J and cocrran, A. (2013). Impact of nursing – driven sleep hygiene protocol on sleep quality J. burn care to research; 34(2): 249-254.
- [4] Wang, p. (2016). Editorial sleep dicorders in pregnancy.science Direct Journal of the Chinese Medical Association, 793e4.
- [5] Batterham, P.J, Glosier, N, and Chridtenen, H. (2012). The onset of depression and anxiety. prospective cohort study, Aust, N.Z.J. psichatry; 46(11):1089-1098
- [6] APA. (2013). Diagnostic and statistical manual OF mental disorders. 5th ed. Washington .American psychotric pub; American psychiatric Association
- [7] Krystal, A. (2012). Psychiatric disorders and sleep, Near clin, November; 30(4): 1389-1413.
- [8] Stummer, L, Markovic, M, and Maroney, M. (2018) pharmacolcictreatment options for insomnia in patiente with schigophrein, Medicine; 5(88): 1-100.
- [9] N Ishinoue, N, Takano, T, kaku, A, Eto, R kato, N ono, Y, and tanaka, K (2012). Effects of sleep hygiene eduction and behavirol therapy on sleep quality of whit –collar workers arandomiged controlled trail, I ndns . health, 50(2): 123-131.
- [10] Kira, G, Maddison, R, Hull, M, Blunden, S, and olds, T. (2014). Sleep education improves the sleep duration of adolescent: a randomized controlled pilot study, J clinical sleep medicine; 10(7): 787. 790.
- [11] Alvaro, P, Roberts, R, Harris, J and Bruni, O, (2017). The direction of the relation ship between symptoms of insomnia and psychiatric disorders in adolescante, Joff, dio; 207(2017): 167-174.
- [12] Palmese, L., De George, p, Ratiiff, J, Srihav, V., Wexler, B., Krystal, A., and Tek, C. (2011). Insomnia is frequent in schizophrenia and associated with night eating and obesity–sch, Res; 133(3): 238-243.
- [13] Kaskie, R, Graziano, B, and ferrarelli, F. (2017). Schizophrenia and sleep diorders; links, risks and management challengea, Nature and science of sleep. (9): 227-239.
- [14] Sharma, p., Dikshit, R, Shah, N, Karia, S, De souse, A. (2016). Excessive daytime sleepiness in schizophrenia: a naturalistic clinical study, J. clin Diag.Res; 10(10): VCO6-VCO8.
- [15] Ghabdour, L.A. El Sayed, D.S and Martis, S.S. (2012). Prevalence and patterns of commonly abused Psychoactive prescription drugsin in a sample of university student from lebnon Drug Alcohol Depend; 121(1): 110-117.
- [16] Ngante, C. (2016). The evaluation of the effectiveness of sleep hygiene protocol for insomnia. A Dissertation doctorate of Nursing practice
- [17] Conroy, D. and Huntley, E. (2013). Treatment for insomnia in depressed adolescante. SI. dieftherapy; 2(5): 1-10.
- [18] Valante, s, (2015). Evaluating and managing insomnia: on pharmacological Treatments. J sleep dis therapy; 4(2); 1-4.
- [19] Hombali, A, Seoe, E, yan, Q, Chang, H, Satghare, P, Kumar, S, verma, S, Mok, and Clong, S. (2018). Prevalence and correlate of sleep disorder syrptoms in psychiatric disorders psychatry pesearch.
- [20] Waite, F., Myers, E, Harvey, A, Espie, C, Startup, H, Sheaves, B, and Freeman, D. (2016). Treating sleep problems in patients with schizophrenia, Beh.cog,psychother; 44(70): 273.
- [21] Morin, C.M, (2001). Validation of the Insomnia Severity Index (ISI) as an outcome measure for insomnia research. Sleep Medicine; 2(4): 297-307 • August 200
https://www.researchgate.net/publication/11903319_Validation_of_the_Insomnia_Severity_Index_ISI_as_an_outcome_measure_for_insomnia_research.
- [22] Buysse, DJ, Reynolds C., Monk, TH, Berman SR, and Kupfer DJ. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Research; 28(2). 193-213.
- [23] Parekh, R. (2017). Schizophrenia. The American Psychiatric Association (APA).
<https://www.psychiatry.org/patients-families/schizophrenia/what-is-schizophrenia>.
- [24] Buysse, DJ. (2013). Insomnia. JAMA.; 309(7): 706-716.
<https://www.winchesterhospital.org/health-library/article?id=19705> "Risk Factors For Insomnia". Retrieved 2019-04-14.
- [25] National Institute of Health. (2016). "What Is Insomnia?". NHLBI. December 13, 2011. Archived from the original on 28 July 2016.
<https://web.archive.org/web/20160728012148/http://www.nhlbi.nih.gov/health/health-topics/topics/inso>

- [26] Punnoose, AR, Golub RM, Burke, A.E. (2012). Patient page. Insomnia. JAMA. 307 (24): 2653.
- [27] Qaseem A, Kansagara D, Forcica MA, Cooke M, Denberg TD (July 2016). "Management of Chronic Insomnia Disorder in Adults: A Clinical Practice Guideline from the American College of Physicians". *Annals of Internal Medicine*; 165 (2): 125-33.
- [28] Ellis J, Hampson SE, Cropley M (May 2002). "Sleep hygiene or compensatory sleep practices: an examination of behaviours affecting sleep in older adults". *Psychology, Health & Medicine*; 7 (2): 156-61.
- [29] Chan MS, Chung KF, Yung KP, Yeung WF (2017). Sleep in schizophrenia: a systematic review and meta-analysis of polysomnographic findings in case-control studies. *Sleep Med Rev* 32: 69-84.
- [30] JinJu, S & Woo, H. (2016). The Effects of Sleep Hygiene Program on Sleep Quality in the Elderly Women. *Indian Journal of Science and Technology*; 9 (37). www.indjst.org.
- [31] Khalladi K, Farooq, A, Souissi, S, Herrera, C, Chamari, K, Taylor, L, Massioui, F. (2019). Inter-relationship between sleep quality, insomnia and sleep disorders in professional soccer players; *BMJ*; 5(1) <https://bmjopensem.bmj.com/content/5/1/e000498>.
- [32] Tang, J, Liao, Y, Kelly, B, Xie, L, Xiang, Y, Chang, Qi, Pan, C. et al., 2017. Gender and Regional Differences in Sleep Quality and Insomnia: A General Population-based Study in Hunan Province of China. *Scientific Reports* volume 7, Article number: 43690 (2017).



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