



Sleep quality among adults and older adult who lives in Residential Care Center - RCC

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General Note



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ABSTRACT

Background/objectives: Sleep is an essential neurophysiological process; it integrates health of all parts of the body and restores physiological and psychological functions. There are multi physiological processes affected by sleep as protein synthesis, hormonal release. The studies among older adult in Jeddah Saudi Arabia relatively rare, and most of them did not use PSQI (Pittsburgh Sleep

Quality Index). In this study we assess the quality of sleep on adults and older adults here on Residential care centers (RCCs). *Materials and Methods:* A descriptive cross-sectional study was conducted among all adults and older adult live at RHCC in Jeddah, Saudi Arabia from June to July 2018 by using PSQI (Pittsburgh Sleep Quality Index). *Results:* 68.89% of older age has Poor Sleep Quality. Our participants are 259, Female were more than male, the mean of age for our sample are 48.59. We found an obvious statistical significant relation between sleep quality and (Migraine, DM, anxiety and depression, smoking, pain killer using) $P=0.087$, $P=0.003$, $P=0.000261$, $P=0.049$, $P=0.022$ respectively. *Conclusion:* By the end of our study, most of older adult in RHCC has poor sleep quality due to several factors, and this study will recommend having more attention toward RCCs participants and more acceptability to visit primary health care.

Keywords: Sleep, Residential care center, older adult.

1. INTRODUCTION

Sleep is an essential neurophysiological process; it integrates health of all parts of the body and restores physiological and psychological functions (Van Cauter et al., 2007). There are multi physiological processes affected by sleep as manipulation of the autonomic nervous and brain waste clearance, cognition, performance, development system, protein synthesis, hormonal release, energy conservation, modulation of immune responses, disease, vigilance, and psychological conditions (Jackson CL et al., 2015; Mullington JM et al., 2009).

Older adults require only 5 to 6 hours of sleep per night (O'Neill PA, 2002). Sleep quality changes as a function of normal ageing (El Arab HE et al., 2014). Insomnia defined as having difficulty in falling or staying asleep, which there are a lot of epidemiological studies have reported that prevalence of insomnia symptoms ranging from 10 % to 48 % around the entire world (Ohayon MM, 2002; George S et al., 2018; Neubauer DN 1999).

Almost all epidemiological studies reported an increased prevalence of insomnia symptoms related to ageing (getting old) (55 years and above) (Petry NM, 2002), and it has two types: primary or secondary, and it can be with a causative factor or non-causative factor, if the causative factor is absent it termed as primary insomnia. And if it is caused by an underlying medical condition or as a side effect of medication, it is referred to as secondary Insomnia (Morris JL et al., 2018). There is a lot of etiologies influence sleep quality among adults and older adults, such as chronic medical disease and psychological disorders, diabetes, cancer, migrant status, ageing, being medical students and living on rural population (George S et al., 2018; Cappuccio FP et al., 2010; Vogtman E et al., 2013; Zhang HS et al., 2017; Buysse DJ et al., 1991; Ibrahim NK et al., 2017). Poor sleep quality can lead to; anxiety, depression, suicidal attempt, poor quality life, decrease cognitive function and unhealthy body (Buysse DJ et al., 1991; Azri MA et al., 2016; Nebes RD et al., 2007; Alarabi F et al., 2017).

A study showed that the prevalence of sleep quality of elders living in long-term care institutions in the city of São Paulo, Brazil, individuals aged between 60 and 69 years (57.9%) has good sleep quality (Araújo CL & Ceolim MF, 2010). There was a study done in China about the prevalence and risk factors of poor sleep quality, the mean age of participants was 72.2 years, and the result was Poor sleepers in females more (63.2%) (Luo J et al., 2013). Yang's meta-analysis found that the sleep duration was not prolonged after exercise, but the quality of sleep was significantly improved (Yang PY et al., 2012). Another study done among Saudi adult at King Abdul-Aziz medical city Riyadh (KAMC-R), they said there is the relationship between obesity and poor sleep quality (Ahmed AE et al., 2017). There is a study conducted on Tabriz about sleep quality and there were significant differences between older adults who are living in their own homes and the others who live in the RCCs (Beyrami M et al., 2014).

The studies among older adult in Jeddah Saudi Arabia relatively rare, and most of them did not use PSQI (Pittsburgh Sleep Quality Index) which is validated scale. Also, most research's was on young ages or college students (Phillips BA & Danner FJ, 1995). Hence, this study was conducted to use PSQI to assess the quality of sleep on adult and older adult here on Residential care centers (RCCs) Jeddah Saudi Arabia.

2. METHODOLOGY

This study was approved by the institutional review board (IRB) of KAUH. A descriptive cross-sectional study was conducted among all adults and older adults live at (RCC) in Jeddah, Saudi Arabia from June to July 2018. Our Sample size is (265) were participate in this study all of them above 18 years old and live in RCC, we classified them into three age groups (young adult 18-35) (Middle adult

36-55) (older adult above 55) (Petry NM, 2002) then we exclude six of them (below age of 18 years), and those with drug abuse or had surgery before two weeks were excluded.

By using Pittsburgh sleep quality index (PSQI) questionnaire which is validated to assess the sleep of quality (Buysse DJ et al., 1989), and we translated into Arabic by a bilingual translator. PSQI have seven components with using score system by 9; above 5 suggest poor quality of sleep. The questioner included demographic and socioeconomic data (gender, age, marital status, number of family members, occupation, educational level, income...etc.) and we assess the effect some of chronic diseases as (diabetes, hypertension, cardiovascular diseases, migraine and asthma which were found) on sleep quality and we look for if there is a relation between exercise and sleep quality. Also if sleep quality affected by sleep quality by number of sleep hours or by load snoring or by nightmares.

Data entry was collected through interview, and we used Microsoft office excel 2016 to display graphs. Statistical analysis was performed by using SPSS (statically package of social science) V21. We consider p-value=0.05 as significant statistical and our confidant interval (CI) is 95 %. We used bivariate and univariant variables, for categorical variables we used Chi-square and Fisher exact test.

3. RESULTS

Our aim on this study was to assess the quality of sleep among adults and older adult in three age groups who live in (RCCs) in Jeddah, Saudi Arabia. Our study is cross sectional, a total of 265 participants were included, but we excluded 6 participants because they below age of 18. We went to 15 (RCC). The mean of members in each unit was 3.64. The samples mean age (48.59) with $SD \pm 17.42$. We took both male and female as gender but females were more than (quadruple) male by 80.3%. Non Saudi 75.7% were more than Saudis. The most of our sample are married 31.7% (Table 1).

69.1% (179) of our sample has poor sleep quality (Figure 1), and the same in older group age (68.89%) (Figure 2), and most age group with poor sleep quality are middle age (36-55) $N=68$, and most age group with good sleep quality are middle age (36-55) $N=33$ and we did not find any statistically significant relation between sleep quality and our age groups ($P=0.0807$).

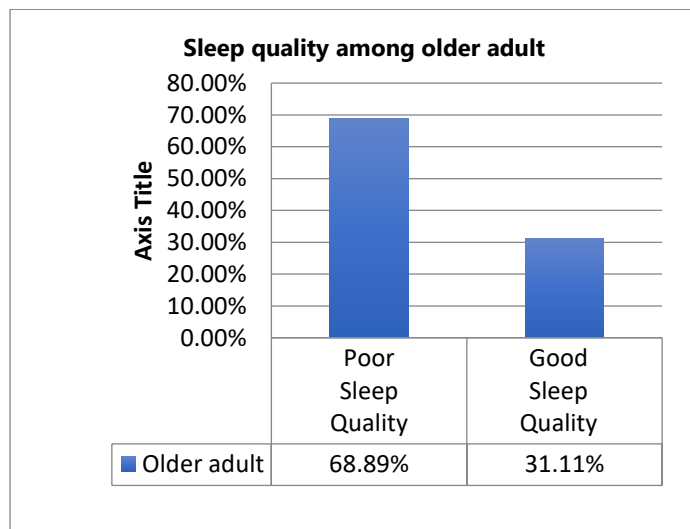
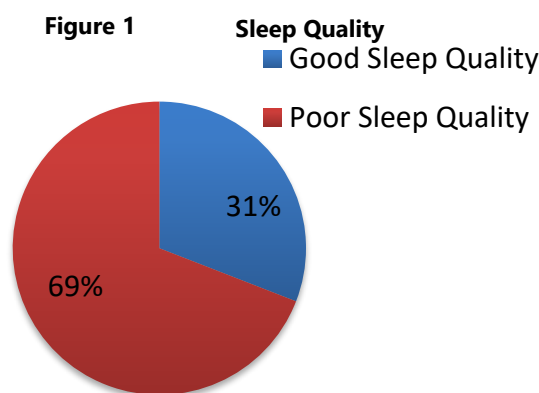


Table 1: Socio demographical data

| | | Gender | | Nationality | | Marital Status | | | |
|-----------|------------------|--------|--------|-------------|-----------|----------------|---------|--------|---------|
| | | Male | Female | Saudi | Non Saudi | Divorced | Married | Single | Widowed |
| Age Group | Young adult = N | 17 | 51 | 16 | 52 | 6 | 25 | 37 | 0 |
| | Middle adult = N | 15 | 86 | 30 | 71 | 45 | 33 | 5 | 18 |

| | | | | | | | | | |
|-------|-----------------|----|-----|----|-----|----|----|----|----|
| | Older adult = N | 19 | 71 | 17 | 73 | 22 | 24 | 42 | 42 |
| Total | | 51 | 208 | 63 | 196 | 73 | 82 | 84 | 60 |

This table describe Socio demographical data (Frequency)
Young adult (18-35), Middle adult (36-55), older adult (above 55)

Those who did not go to do exercise regularly had more poor sleep quality 64.7% with no statistically significant relation ($P=0.482$). And on our sample of those smokers most of them has poor sleep quality 77.5%, and we found a statistically significant relation ($P=0.049$) with sleep quality. When we asked who does take painkiller and who did not we found most of them took it and most of them had poor sleep quality 37.8% and we found that there are a statistically significant differences ($P=0.022$).

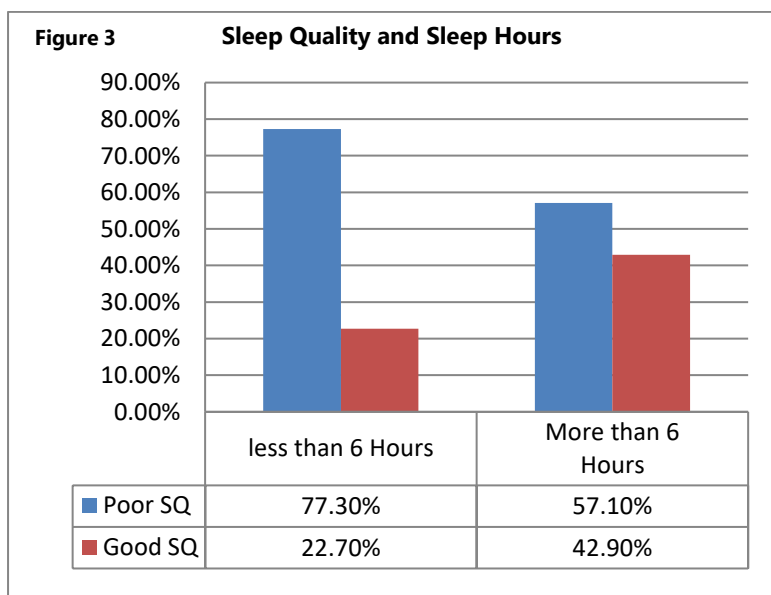
And when we asked them about history of anxiety and depression we found that there is a statistically significant relation with sleep quality ($P= 0.000261$) 52.5% (Table 2).

Table 2: Quality of sleep relations and age groups

| | | Sleep quality | | | Sleep quality | | | | |
|-----------|------------------|---------------|------|------|--|------|------|------|----------|
| | | Gender | Poor | Good | Factor | | Poor | Good | P-value |
| Age group | Young adult = N | Male | 10 | 7 | Smoking ^(a) =% | YES | 12 | 3.5 | 0.049 |
| | | Female | 39 | 12 | | NO | 48.3 | 25.9 | |
| | | | | EX | | 8.9 | 1.5 | | |
| | Middle adult = N | Male | 10 | 5 | Painkiller use ^(b) =% | YES | 37.8 | 18.9 | 0.022 |
| | | Female | 58 | 28 | | NO | 31.3 | 12 | |
| | Older adult = N | Male | 12 | 7 | Depression & Anxiety ^(b) =% | YES | 52.5 | 16.2 | 0.000261 |
| Female | | 50 | 21 | NO | | 16.6 | 14.7 | | |

* This table describe sleep quality between the 3 groups of age (Frequency)
(^a) Chi Square, (^b) Fisher exact. P= P- Value , N= Number

Those who had less than 6 Hours of sleeping per day had Poor sleep quality by 77.3% and statistically affecting their sleep quality P-Value = 0.001 (figure 3), also those who had nightmares had more poor sleep quality by 81.3% in same time who had load snoring are affected by 80% and both are statistically significant (p -value= 0.007, 0.005) respectively (Table 3).



| Table 3 | Nightmares And Sleep Quality | | Sleep Quality | | Total |
|---------------------|--------------------------------|--------|---------------|-------|--------|
| | | | Good | Poor | |
| Bad Dream | No | Number | 66 | 118 | 184 |
| | | % | 64.1% | 35.9% | 100.0% |
| | Yes | Number | 14 | 61 | 75 |
| | | % | 18.7% | 81.3 | 100.0% |
| P-Value | | | 0.007 | | |
| | Load Snoring And Sleep Quality | | Sleep Quality | | Total |
| | | | Good | Poor | |
| Load Snoring | Yes | Number | 61 | 103 | 164 |
| | | % | 37.2% | 62.8 | 100.0% |
| | No | Number | 19 | 76 | 95 |
| | | % | 20% | 80% | 100.0% |
| P-Value | | | 0.005 | | |
| Fisher's Exact Test | | | | | |

We looked if there are any relation between the quality of sleep and chronic diseases such as HTN, DM, Asthma, Migraine, CVDs and we asked them about history of any of this chronic disease, we found that most of our sample have HTN (N=76), also we asked them if they took their medication regularly or not for this chronic diseases (Table 4).

And if there is a significant relation with sleep quality, we found a statistically significant relation on DM medications taking ($p=0.005$) and migraine medications taking ($p=0.024$) only (Table 5).

| Table 4: Quality of sleep relations with chronic disease and medications | | | | | |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|
| Sleep quality | Chronic disease | | | | |
| | DM | HTN | Asthma | CVDs | Migraine |
| % Poor | 22.4 | 22.8 | 11.2 | 9.3 | 15.8 |
| N | 58 | 59 | 29 | 24 | 41 |
| % Good | 4.2 | 6.6 | 3.5 | 2.3 | 2.7 |
| N | 11 | 17 | 9 | 6 | 7 |
| P-value | 0.003 ^(a) | 0.078 ^(a) | 0.395 ^(a) | 0.245 ^(a) | 0.011 ^(b) |
| * This table describes sleep quality and its relation to factors. (a) Chi Square, (b) Fisher exact. DM= Diabetes Miletus, HTN= hypertension, CVDs= cardiovascular diseases. P= P- Value , N= Number | | | | | |

| Table 5: Quality of sleep relations with chronic disease and medications | | | | | | | | | | | |
|--|-----------------|------|-----|------|--------|-----|------|-----|----------|-----|----------------|
| Sleep quality | Chronic disease | | | | | | | | | | Medication use |
| | DM | | HTN | | Asthma | | CVDs | | Migraine | | |
| | N | % | N | % | N | % | N | % | N | % | |
| Poor sleep | 53 | 20.5 | 41 | 15.8 | 19 | 7.3 | 16 | 6.2 | 16 | 6.2 | Yes |

| | | | | | | | | | | | |
|--------------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--|
| quality | 5 | 1.9 | 18 | 6.9 | 10 | 3.9 | 8 | 3.1 | 25 | 9.7 | I do not take any medication regularly |
| Good sleep quality | 11 | 4.2 | 13 | 5 | 6 | 2.3 | 3 | 1.2 | 2 | 0.8 | Yes |
| | 0 | 0 | 4 | 1.5 | 3 | 1.2 | 3 | 1.2 | 5 | 1.9 | I do not take any medication regularly |
| P | 0.005 | | 0.141 | | 0.581 | | 0.314 | | 0.024 | | |

* This table describes sleep quality and its relation to Medications, Chi Square used.
DM= Diabetes Miletus, HTN= hypertension, CVDs= cardiovascular disease, P= P- Value , N= Number

Finally, we used PSQI to asses and determine the sleep quality and in this Table: 6 we expline some important points about our sample.

| Table 6 : Supplementary data | | | | | |
|--|-----------------------|---------------------------|----------------------|----------------------------|---|
| Question | Less than once a week | Not during the past month | Once or twice a week | Three or more times a week | |
| Cannot get to sleep within 30 minutes | 39 | 86 | 25 | 109 | N |
| | 15.1% | 33.2% | 9.7% | 42.1% | % |
| Wake up in the middle of the night or early morning | 50 | 100 | 35 | 74 | N |
| | 19.3% | 38.6% | 13.5% | 28.6% | % |
| Have to get up to use the bathroom | 43 | 54 | 38 | 124 | N |
| | 16.6% | 20.8% | 14.7% | 47.9% | % |
| Cannot breath comfortable | 27 | 180 | 20 | 32 | N |
| | 10.4% | 69.5% | 7.7% | 12.4% | % |
| Cough or snore loudly | 26 | 165 | 19 | 49 | N |
| | 10% | 63.7% | 7.3% | 18.9% | % |
| Feel too cold | 24 | 174 | 16 | 45 | N |
| | 9.3% | 67.2% | 6.2% | 17.4% | % |
| Feel too hot | 38 | 159 | 22 | 40 | N |
| | 14.7% | 61.4% | 8.5% | 15.4% | % |
| Have pain | 17 | 135 | 22 | 85 | N |
| | 6.6% | 52.1% | 8.5% | 32.8% | % |
| During the past month , how often have you had trouble staying awake | 33 | 167 | 27 | 32 | N |
| | 12.7% | 64.5% | 10.4% | 12.4% | % |
| During the past month , how much of a problem has it been for you | 36 | 138 | 25 | 60 | N |
| | 13.9% | 53.3% | 9.7% | 23.2% | % |

| | | | | | |
|---|------------|-------------|----------|-----------|---|
| Did you suffer from any other problem | 5 | 231 | 5 | 18 | N |
| | 1.9% | 88.5% | 1.9% | 6.9% | % |
| Have bad dream | 25 | 182 | 15 | 37 | N |
| | 9.7% | 70.3% | 5.8% | 14.3% | % |
| During the past month , how would rate your sleep quality | Fairly bad | Fairly good | Very bad | Very good | |
| | 53 | 66 | 47 | 93 | N |
| | 20.5% | 25.5% | 18.1% | 35.9% | % |
| During the past month , how often have you taken medicine to help | Yes | | NO | | |
| | 28 | 10.8% | 231 | 89.2% | |

4. DISCUSSION

We found that most of our participant who has poor sleep quality is (69%) and older adults also had poor sleep quality (68.89%), a study was done in China, shows poor sleep quality was 20.67%, the quality of sleep is better than our sample because of several factors (Ibrahim NK et al., 2017).

We found a significant relation between sleep quality and DM, migraine, Other study was done in King Abdul-Aziz Medical city in Riyadh, Saudi Arabia, They found relation between sleep duration and diabetes, hypertension and obesity .The difference between there study and ours are, their study assess sleep duration and chronic diseases while our study assess the presence of chronic disease and sleep quality and they also used PSQI (AL-Otaibi HH, 2016) , and also we found there is significant relation between taking of medication for diabetes, migraine and sleep quality.

In our study we found that relation between the sleep quality and depression and anxiety is significant which is confirmed by another study was done in University of Pittsburgh School of Medicine, Pittsburgh, USA (Azri MA et al., 2016).

Limitation

We couldn't reach to all members in RCC due to they refused to do the interview, also we found females are quadruple more than males, and we contact to the demand of the residential units and they give us a large number of participant but when we went there we didn't found that number, they were much lesser than what they gave us, and some of our participant they didn't know there weight or height so we couldn't calculate their BMI.

5. CONCLUSION

We appraise the quality of sleep in adults and older adults people who lives in (RCC) in Jeddah, Saudi Arabia. We found poor sleep quality is more in older adults, May because several factors such as chronic disease like DM and HTN. From our point of view, we recommend to make regular visits to primary health care center, and to educate participants about chronic diseases and quality of sleep.

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Conflicts of Interest:

The authors declare no conflict of interest.

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