As people get older, decline in the efficiency of their circadian mechanism causes changes in the sleep patterns which increases the difficulty falling asleep and in staying asleep (Gulia & Kumar, 2018). One study which followed trends of sleep disorders between 2002 and 2012 in the United States reported the prevalence rate was 21.3% in older population (Ford, Cunningham, Giles, & Croft, 2015) and wide range in prevalence of sleep disorders from different countries were reported (Gulia & Kumar, 2018).

Factors Related to Self-Reported Sleep Quality in Older Korean Americans With Chronic Pain

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Background

Sleep quality is a critical factor for maintaining and promoting health since it is closely related to daily life and significantly associated with physical and mental health especially in the older population. As people get older, the declined efficiency of their circadian mechanism causes changes in the sleep patterns, which can lead to the sleep problems. Thus, the purpose of this study is to investigate the subjective sleep quality level and its related factors among Korean American older population with chronic pain.

Methods

- IRB approval from Towson University (#1806036244)
- Data collection between Nov. 2018-Mar. 2019 in adult medical daycare centers, Korean churches and senior centers in Maryland.
- Inclusion criteria (MMSE ≥ 24, aged ≥65, self-reported with chronic pain)
- Sleep quality was measured using The Pittsburgh Sleep Quality Index(PSQI). The higher score indicates the lower sleep quality.
- Health-related Quality of Life was measured using Korean version of the Euro Quality of Life Questionnaire 5-Dimensional Classification (EQ-5D).
- Level of chronic pain (severity and pain with life disturbance) was measured using The Brief Pain Inventory (BPI)
- Depressive symptoms were measured using Korean Version of Patient Health Questionnaire-9 (PHQ-9K)
- Acculturation was measured using five questions on preferences for foods, music, customs, language, and close friends, which were modified from the Suinn-Lew Asian Self-Identity Acculturation Scale.

Results

Table 1.Sleep quality related factors

		Sleep Quality		χ^2 or t	p
		Good (n=51, 39%)	Poor (n=81, 61%)		
		n(%) or mean ±SD	n(%) or mean ±SD		
Gender	male	14(27.5)	10(12.3)	4.80	0.02
	female	37(72.5)	71(87.7)		
Economic status	poor	3(5.9)	7(8.9)	0.89	0.64
	moderate	15(29.4)	27(34.2)		
	good	33(64.7)	45(57.0)		
Living with spouse	yes	21(41.2)	37(45.7)	0.26	0.61
	no	30(58.8)	44(54.3)		
Education (years)	≤ 6	8(15.7)	17(21.0)	4.42	0.11
	6 < ≤ 12	23(45.1)	46(56.8)		
	12 <	20(39.2)	18(22.2)		
Age (year)		76.86±7.48	79.25±5.99	-1.92	.06
Total number of diseases		2.31±1.59	2.91±1.99	-1.81	.07
Quality of life		0.82±0.13	0.70±0.19	4.15	.00
Pain severity		2.75±1.88	4.40±2.12	-4.53	.00
Pain with life disturbance		2.04±2.16	4.07±2.54	-4.90	.00
Depressive symptoms		2.80±3.85	7.23±5.50	-5.38	.00
Acculturation		8.38±2.72	7.67±2.29	1.59	.11

Table 2. Sleep quality and pain

Variable	Pain severity mean±SD				F	p	Pain with life disturbance mean±SD				F	p
	1st quartile	2nd quartile	3rd quartile	4th quartile			1st quartile	2nd quartile	3rd quartile	4th quartile		
Subject Sleep Quality	0.51±0.61	1.15±0.91	1.20±0.89	1.33±1.08	5.85 a≠b,c,d	.00	0.52±0.57	0.97±0.85	1.23±0.94	1.38±1.06	6.01 a≠c,d	.00
Sleep latency	0.79±0.91	1.35±1.04	1.66±0.90	1.91±1.07	7.87 a≠c,d	.00	0.63±0.85	1.48±1.03	1.45±0.93	1.97±1.00	10.77 a≠b,c,d	.00
Sleep duration	1.49±1.12	1.44±1.11	1.60±1.16	1.91±1.21	1.13	.34	1.13±1.06	1.70±1.13	1.74±1.06	1.81±1.24	2.46	.07
Sleep Efficiency	0.51±0.98	0.56±0.99	0.80±1.03	1.00±1.23	1.52	.21	0.48±0.96	0.70±1.08	0.61±0.96	1.00±1.20	1.48	.22
Sleep disturbances	1.03±0.38	1.35±0.49	1.53±0.57	1.91±0.72	15.01 a≠c,d b≠d	.00	0.97±0.32	1.36±0.49	1.55±0.62	1.84±0.69	14.46 a≠b,c,d b≠a,d	.00
Use of sleeping medication	0.23±0.73	0.56±1.16	0.47±1.01	0.58±1.15	.84	.47	0.13±0.56	0.30±0.81	0.65±1.23	0.70±1.22	2.46	.07
Daytime dysfunction	0.54±0.61	0.97±0.94	1.27±0.98	1.39±1.06	5.86 a≠c,d	.00	0.55±0.68	0.82±0.85	1.23±0.88	1.46±1.10	6.90 a≠c,d b≠d	.00

Table 3.Sleep quality and depression

Variable	Depressive symptoms M±SD		t	p
	Yes (n=59, 47%)	No (n=70, 53%)		
Subject Sleep Quality	1.49±0.99	0.67±0.70	-5.35	.00
Sleep latency	1.86±1.02	1.01±0.95	-4.86	.00
Sleep duration	1.92±1.22	1.39±1.04	-2.66	.01
Sleep efficiency	1.07±1.19	0.43±0.88	-3.42	.00
Sleep disturbances	1.76±0.65	1.19±0.49	-5.59	.00
Use of sleeping medication	0.73±1.24	0.16±0.58	-3.25	.00
Daytime dysfunction	1.42±1.021	0.69±0.77	-4.56	.00

Table 4. Coefficients of the model predicting sleep quality

Categories	β	95% CI for Odds Ratio		
		Lower	Odds	Upper
Constant	-3.46			
Gender	0.88	.85	2.40	6.80
Quality of life	-0.65	.17	.52	1.58
Pain severity	0.41	.55	1.50	4.13
Pain with Life disturbance	0.58	.54	1.79	5.94
Depressive symptoms	1.37*	1.58	3.94	9.82

*** p<0.01**

Discussion

Our findings suggest associations between self-reported sleep quality and changes in quality of life, pain, and depressive symptoms in older Korean Americans experiencing chronic pain. It is highly recommended that sleep quality should be comprehensively assessed and managed among older Korean Americans, especially those with multiple chronic conditions that have potential to impact sleep quality negatively. Further research is needed to determine the detailed mechanism through which these factors affect sleep quality.