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### Sleep Patterns and their Relation to Psychological Traits in Women

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Presentación

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**ABSTRACT:** The number of hours of sleep, approximately 8, is an average that varies little from one culture to another. However, there are individual differences for this variable, which has permitted the establishment of certain sleep patterns. Many studies have focused on the relationship between psychological variables and sleep patterns, which have produced contradictory results. The purpose of the present investigation is to evaluate the extent of dimensions of extraverted and neurotic personalities and state-trait anxiety levels in women with different sleep patterns. In a sample of 300 young healthy adults, 34 women were selected, 17 women showed a long sleep pattern, 9 showed an intermediate sleep pattern and 8 showed a short sleep pattern (age  $X = 20.29$   $SD = 1.55$ ). The results indicate that there are no significant statistical differences between psychological variables and sleep patterns, which concludes that there exists no relation between sleep duration and personality and anxiety factors.

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**RESUMEN:** La cantidad de horas de sueño, aproximadamente 8 horas es una constante que varía muy poco de una cultura a otra. A pesar de ello, existen grandes diferencias individuales en esta variable, lo que ha permitido que se establezcan ciertos patrones de sueño. Son muchos los estudios que se han centrado en relacionar variables psicológicas y patrones de sueño, siendo los resultados en cierto modo contradictorios. Por ello, el objetivo de la presente investigación fue evaluar las dimensiones de personalidad extraversión y neuroticismo y los niveles de ansiedad estado/rasgo de sujetos con diferentes patrones de sueño. De una muestra de 300 adultos jóvenes sanos se seleccionaron a 34 mujeres, 17 con patrón de sueño largo, 9 patrón intermedio y 8 patrón corto (edad  $C = 20,29$   $DT = 1,55$ ). Los resultados indican que no existen diferencias estadísticamente significativas ( $p < 0,05$ ) entre variables psicológicas y patrones de sueño, por lo que hay que concluir que no hay relación entre la duración del sueño y factores de personalidad y ansiedad.

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In order to function adequately and to adapt to an environment, living organisms need to sleep for a number of hours. The necessary number of hours for human beings depend on biological, behavioral and environmental factors. As a result, certain sleep patterns have been established which characterize each individual. Sleep patterns are measurements that identify the presence of sleep within a 24 hours period. The indicators for these patterns are the onset and the completion of sleep [1]. Consistent with this, different sleep patterns exist within sleep duration. Short-sleep pattern individuals usually sleep 6 hours or less, and long-sleep pattern individuals sleep 9 or more hours. Both are extreme sleep patterns which are characteristic of people with heterogeneous life styles. Most people sleep between 6 ½ and 8 hours, which refers to an intermediate sleep pattern [2].

Many authors have investigated psychological variables and sleep patterns. However, results

have been inconsistent in establishing conclusive results. Hartmann et al [3] reported that long-sleep pattern individuals are more introverted and neurotic than short-sleep pattern individuals. Skinner [4] supported these findings in a study with university students. Wagner et al [5] found that long-sleep pattern individuals have a tendency to score higher on pathological traits of the MMPI clinical measures. Hartmann et al [3] concluded that with respect to neurotic disorders, long-sleep pattern individuals possess significantly higher anxiety levels than short-sleep pattern individuals. Chattopadhyay et al [6] conducted a study with children and obtained similar results. Children with long-sleep patterns were more anxious, introverted and neurotic than children with short-sleep patterns. However, according to Hicks et al [7] short-sleep pattern individuals were more anxious than long sleep pattern individuals. Kumar et al [8] found similar results in the Indian population, where short-sleep pattern individuals presented higher levels of neuroticism.

Due to topic controversy, Webb [9] revised most relevant studies on this subject. He concluded that differences found by others concerning the personality traits of both groups really have not been proven. Buena-Casal et al [10] confirmed these results. These authors concluded that differences found in long- and short-sleep pattern individuals, apart from sleep duration, are not proven [2, 11]. Due to existing controversial results about sleep duration and its relation to personality traits, the purpose of the present investigation is to evaluate if the intermediate, short- and long-sleep pattern individuals showed differences in the personality traits of extroversion and neuroticism, and in the variable referred to as state-trait anxiety.

## METHODS

### Research participants

The first selection phase of Research participants was composed of 300 young adults. In the second phase, a sample of 34 women between the ages of 19 and 25 years was selected ( $X = 20.29$  years  $SD = 1.55$ ). The sample of 34 women contained 17 long sleep pattern individuals, 9 intermediate sleep pattern individuals and 8 short sleep pattern individuals.

### Instruments

- *Sleep Behavior and Habits Questionnaire*. The questionnaire consists of 8 questions concerning sleep habits and the person's vigil at different moments of their life. This same questionnaire classifies the individuals into three categories: short, intermediate and long sleep patterns [11].
- *Eysenck Personality Inventory (E.P.I.)* [12]. This scale measures two personality traits: neuroticism and extraversion.
- *State Trait Anxiety Inventory (STAI)* [13]. This test evaluates two anxiety elements: anxiety as a state and anxiety as a trait.

### Procedure

**The Sleep Behavior and Habits questionnaire was administered to the original sample of individuals in order to classify the individuals according to their sleep pattern. From this first group, the sample of 34 women was obtained and each one voluntarily accepted to participate in the experiment. Of the 34 women, 17 showed a long sleep pattern, 9 showed an intermediate sleep pattern and 8 showed a short sleep pattern. All of the 34 women were individually administered the tests, with the first being the STAI**

## and the second being the EPI Form A.

## RESULTS

As seen in Table 1, the results the Kruskal-Wallis test indicate that there are no significant statistical differences between the three groups with respect to the scores obtained on the EPI for the neuroticism variable [ $\chi^2 = 0,84$ ;  $p < 0,65$ ] as well as the extroversion variable [ $\chi^2 = 2,30$ ;  $p < 0,32$ ]. All the groups scored within an intermediate range for neuroticism and within a high range for extraversion. The ANOVA results reveal no significant statistical differences between the three groups when referring to an anxiety state [ $\chi^2 = 0,10$ ;  $p < 0,95$ ] and an anxiety trait [ $\chi^2 = 2,40$ ;  $p < 0,30$ ], as seen in Table 2.

**Table 1.** Summary of averages, typical deviations and Kruskal-Wallis test obtained by the three groups in the neuroticism and extroversion variables of the EPI.

EPI	SLEEP PATTERNS							
	SHORT		INTERMEDIATE		LONG			
	Average	SD	Average	SD	Average	SD	$\chi^2$	p
<b>Neuroticism</b>	8.25	1.49	8.44	4.42	7.70	4.12	0,84	0,65
<b>Extraversion</b>	15.50	5.63	16.89	3.72	15.06	1.98	2,30	0,31

\*p < 0.05

## DISCUSSION

In general, the results repeat the findings of various authors on the topic. All investigations carried out contrast only extreme patterns, for which it is important to point out that the present study has been included in the third group. After an analysis of the results, we observe the same tendency found in working with extreme patterns; there are no differences with respect to the psychological variables (extraversion, neuroticism and state-trait anxiety) in individuals with distinct sleep patterns. These results agree with those found by Webb et al [14] and Buéla-Casal et al [10,11], among other authors. However, the results differ with those found by Hartmann et al [3], Hicks et al [7], and more recently with those of Chattopadhyay et al [6], who found psychological differences related to sleep patterns. Webb's conclusion is confirmed, which acknowledges that differences between sleep patterns in relation to personality variables are not proven, making evident that the difference between the 3 groups being studied are fundamentally from sleep duration [9].

The information obtained, once again, demonstrates that there is no relationship between the psychological variables and sleep patterns. However, it would be important to associate the sleep patterns with physical and physiological variables. Likewise, the future remains open for

those interested in the field, to include varied sleep pattern individuals and compare the results.

**Table 2.** Summary of the results obtained by the three groups for the state- trait anxiety variables.

	SLEEP PATTERNS							
	SHORT		INTERMEDIATE		LONG			
STAI	Average	SD	Average	SD	Average	SD	$\chi^2$	p
<b>State Anxiety</b>	15.25	5.99	16.22	7.84	15.53	8.11	0,10	0,94
<b>Trait Anxiety</b>	14.25	7.28	17.00	9.45	20.82	10.86	2,40	0,30

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