

The Croatian Translation of the Horne and Östberg Morningness-Eveningness Questionnaire With a Brief Review of Circadian Typology

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Abstract

Introduction: Horne and Östberg Morningness-Eveningness Questionnaire (MEQ) is a questionnaire widely used to assess the circadian typology.

The aim of this study was to translate the MEQ from English into Croatian.

Methods: The translation process included two independent forward translations, integration of the forward translation into a single translation, back-translation, back translation review and drafting of the final translation.

Results: No semantic differences were observed when comparing the original and the back-translation; thus, only minimal alterations were done to the final translation, compared to the first one.

Conclusions: The Croatian version of the MEQ is a reliable translation ready to be tested in a Croatian sample.

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Introduction

Human circadian rhythms are a result of an interaction of several factors, both external, such as light and temperature (1), and internal, determined by a circadian clock network consisting of molecular components where ARNTL, CLOCK, CRYs and PERs genes

represent central nodes in the network (2, 3). The circadian system has a hierarchical structure. The suprachiasmatic nucleus (SCN) of the hypothalamus is the 'master clock' and controls the activity of the peripheral clocks (4). Two feedback loops, ARNTL/CLOCK and CRY/PER control expression of downstream transcription factors which regulate downstream target

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genes involved in different biochemical pathways (5).

The circadian rhythm has been shown to have an impact on human metabolism and several medical conditions, such as diabetes, myocardial infarction, or stroke (6). Different people tend to react differently to specific external factors, for example, with differences in the cyclic secretion of melatonin (7, 8), thus leading to differences in one's circadian rhythm.

Circadian typology shows important differences in biological and behavioral parameters and in circadian clock genes associated with sleep-wake rhythm (9).

The most common method of assessing human circadian preference is by using self-reported questionnaires in which the respondents choose the times in which they feel the best (10). The results of such questionnaires put the participants on a certain point of the Morningness-eveningness (ME) spectrum (11). On the one side of the spectrum there are the morning types. These individuals usually report early bedtimes and rise times, and they tend to perform better in the morning. On the other side of the spectrum there are the evening types, who report later bedtimes and rise times and tend to perform better later in the day (12). There are also intermediate or neither types, who fall somewhere in between the two extremes of the spectrum. Based on the obtained scores in the Morningness-Eveningness Questionnaire, individuals are classified into circadian typologies or chronotype (13). Large epidemiologic studies have demonstrated that chronotype has a normal Gaussian distribution that varies by age and gender, in that the young and old demonstrate earlier chronotype and adolescents and young adults demonstrate a later chronotype (1).

Several studies have confirmed the correlation of scores such as rMEQ, MESC and similar, with objective measures such as the timing of participants' body temperature, sleep-wake cycles, or cortisol or melatonin secretion rhythms (8, 14, 15). The genetics influences account for up to 50% of the variance in morningness, but other factors also have a

significant influence, such as age and gender (16). The Morningness-Eveningness Questionnaire has been used in a wide range of research contexts, including circadian rhythm sleep disorders and studies of genetic influences on sleep patterns (17, 18).

One of the first validated, and still one of the most commonly used questionnaires is the Horne and Östberg Morningness-Eveningness Questionnaire (MEQ). Horne and Östberg adapted and validated the questionnaire previously developed by Öquist in 1970 (19). The questionnaire has since been translated into many different languages (19–21). To the authors' knowledge, the translation made in the present study is the first Croatian translation of this scale, which is significant when taking into account that this valuable instrument can be used for further research in this largely under-researched scientific area in the Croatian population. The complete Croatian version may be found in the supplement and can be freely used in other research.

Method

Morningness-Eveningness Questionnaire

The questionnaire consists of 19 questions dealing with individual preferred times of activity, time of day in which the participants go to sleep or wake up, as well as alertness after waking up (10, 19). Most answers are forced-choice - with no 'do not know/cannot decide' category. The summed scores can be used as a continuous variable, or they can be further divided into a five-point morningness-eveningness scale: definitely morning type (score 70-86), moderately morning type (score 59-69), neither type (score 42-58), moderately evening type (score 31-41), and definitely evening type (score 16-30) (10). The MEQ showed good internal consistency in several validation studies (20, 22).

Procedure

The translation was performed following the algorithm presented in Figure 1. The algorithm was decided upon after taking into account

procedures suggested in several articles (23–29). To simplify the data input of the filled in questionnaires, discrete item choices (multiple choice form ranging from A to E) have been substituted for continuous graphic scales (a visual scale in which the participants had to tick the appropriate hours) (30) in questions 17 and 18, with the scoring remaining identical to the original scale. The wording was also slightly altered, as suggested by Urbán et al. (30).

The questions in each stage of the translation procedure can be observed in Tables 1 and 2.

Results

The translation process can be viewed in Tables 1 and 2. Table 1 shows each question in the original, the translation obtained by combining the two independent forward translations, the back-translation into English, as well as the final version of the translation. Table 2 shows the two independent forward translations into Croatian. The translators aimed to provide a translation that is as close to the original as is possible, with no significant changes to the meaning, or style. When comparing the English version and the back-translated version, no semantic differences were observed. The only differences between the original and the back translation were related to the use of different grammatical forms, which results in very similar meaning. The example of this may be seen in questions 1 and 2, where "Considering only your own 'feeling best' rhythm" of the original was back-translated into "Guided only by your own 'feeling best' rhythm". In question 11, the original construct "You wish to be at your peak performance" was back-translated into "You want to be at your best". Several other constructs also had a different wording, but with no relevant changes in meaning.

Discussion

The Horne and Östberg Morningness-Eveningness Questionnaire (MEQ) is one of the most widely used instruments in the area of circadian typology. It is easy to use, and the results of the test can be easily comparable to results of similar studies. In this study, the

authors created a translation done in several steps, aiming to provide a reliable translation that can be applied in further research in the Croatian-speaking population.

Limitations of the study

This study failed to provide a validation of the final Croatian translation in a sample of Croatian-speaking participants, which should be performed in further research.

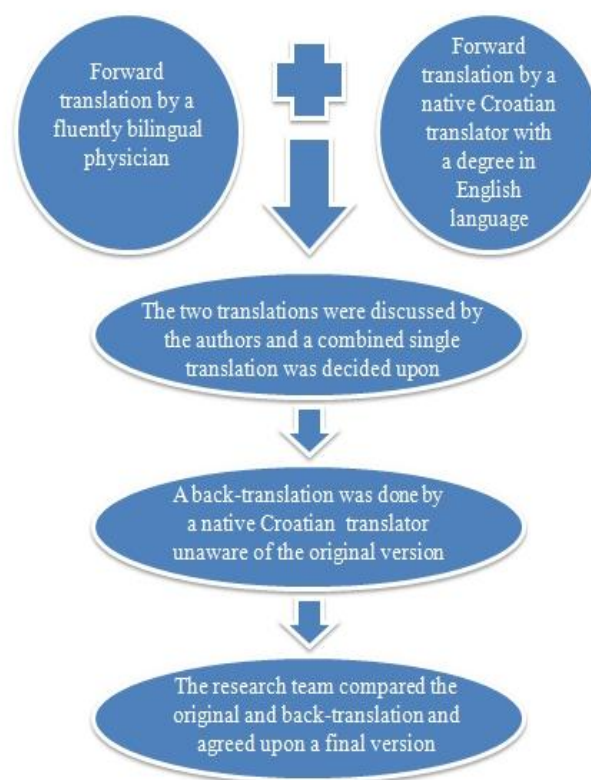


Figure 1. The algorithm of the translation protocol applied in this study

Table 1. Steps for the translation of the Morningness-Eveningness Questionnaire into the Croatian language and the final Croatian version

Original	Combined translation	Back-translation	Final version
1. Considering only your own "feeling best" rhythm, at what time would you get up if you were entirely free to plan your day?	Kad biste se vodili samo svojim ritmom u kojem se najbolje osjećate, kada biste se ustali kada biste bili posve slobodni isplanirati svoj dan?	Guided only by your own "feeling best" rhythm, at what time would you get up if you were entirely free to plan your day?	Vođeni samo osobnim ritmom u kojem se vi najbolje osjećate, kada biste se ustali kada biste bili posve slobodni isplanirati svoj dan?
2. Considering only your own "feeling best" rhythm, at what time would you go to bed if you were entirely free to plan your evening?	Kad biste se vodili samo svojim ritmom u kojem se najbolje osjećate, kada biste otišli spavati kada biste bili posve slobodni isplanirati svoju večer?	Guided only by your own "feeling best" rhythm, at what time would you go to sleep if you were entirely free to plan your evening?	Vođeni samo osobnim ritmom u kojem se vi najbolje osjećate, kada biste otišli spavati kada biste bili posve slobodni isplanirati svoju večer?
3. If there is a specific time at which you have to get up in the morning, to what extent are you dependent on being woken up by an alarm clock?	Ako postoji specifično vrijeme kada morate ujutro ustati, u kojoj mjeri ste ovisni o tome da vas probudi budilica?	If there is a specific time at which you have to get up in the morning, to what extent are you dependent on being woken up by an alarm clock?	Ako postoji specifično vrijeme kada morate ujutro ustati, u kojoj mjeri ste ovisni o tome da vas probudi budilica?
4. Assuming adequate environmental conditions, how easy do you find getting up in the mornings?	Ako se pretpostave adekvatni okolišni uvjeti, koliko vam se lako ujutro ustati?	Assuming that the environmental conditions are adequate, how easy do you find it to get up in the morning?	Ako se pretpostave adekvatni okolišni uvjeti, koliko vam se lako ujutro ustati?
5. How alert do you feel during the first half hour after having woken up in the mornings?	Koliko se budno osjećate u prvih pola sata nakon buđenja ujutro?	How alert do you feel in the first half hour after having woken up in the morning?	Koliko se budno osjećate u prvih pola sata nakon buđenja ujutro?
6. How is your appetite during the first half-hour after having woken in the mornings?	Kakav vam je apetit u prvih pola sata nakon buđenja ujutro?	How is your appetite in the first half hour after having woken up in the morning?	Kakav vam je apetit u prvih pola sata nakon buđenja ujutro?
7. During the first half-hour after having woken in the morning, how tired do you feel?	Koliko se umorno osjećate u prvih pola sata nakon buđenja ujutro?	How tired do you feel in the first half hour after having woken up in the morning?	Koliko se umorno osjećate u prvih pola sata nakon buđenja ujutro?
8. When you have no commitments the next day, at what time do you go to bed compared to your usual bedtime?	Kad nemate nikakvih obveza sljedeći dan, koliko kasnije odlazite u krevet u usporedbi s vašim uobičajenim vremenom?	When you have no commitments the next day, at what time do you go to bed, compared to your usual bedtime?	Kad nemate nikakvih obveza sljedeći dan, koliko kasnije odlazite u krevet u usporedbi s vašim uobičajenim vremenom?

9. You have decided to engage in some physical exercise. A friend suggests that you do this one hour twice a week and the best time for him is between 7.0-8.0 AM. Bearing in mind nothing else but your own "feeling best" rhythm, how do you think you would perform?	Odlučili ste se baviti nekom fizičkom aktivnošću. Prijatelj vam predlaže da se njome bavite po sat vremena dva puta tjedno, a za njega je najbolje vrijeme između 7 i 8 sati. Imajući na umu isključivo vaš ritam u kojem se najbolje osjećate, što mislite kako biste to obavili?	You have decided to do a certain physical activity. A friend suggests that you do this for one hour twice a week, and the best time for him is between 7-8 a.m. Bearing in mind nothing else but your own 'feeling best rhythm', how do you think you would do?	Odlučili ste se baviti nekom fizičkom aktivnošću. Prijatelj vam predlaže da se njome bavite po sat vremena dva puta tjedno, a za njega je najbolje vrijeme između 7 i 8 sati. Imajući na umu isključivo vaš ritam u kojem se najbolje osjećate, što mislite kako biste to obavili?
10. At what time in the evening do you feel tired and as a result in need of sleep?	U koje se doba večeri osjećate umorno i kao posljedicu toga osjećate potrebu za snom?	At what time in the evening do you feel tired and, as a result, in need of sleep?	U koje se doba večeri osjećate umorno i kao posljedicu toga osjećate potrebu za snom?
11. You wish to be at your peak performance for a test which you know is going to be mentally exhausting and lasting for two hours. You are entirely free to plan your day and considering only your own "feeling best" rhythm, which ONE of the four testing times would you choose?	Želite biti u najboljem stanju za test za koji znate da će biti mentalno iscrpljujuć i trajati dva sata. Posve ste slobodni isplanirati svoj dan. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, koje biste vrijeme testiranja, jedno od četiri ponuđena, izabrali?	You want to be at your best for a test that you know is going to be mentally exhausting and lasting two hours. You are completely free to plan your day. Considering only your 'feeling best rhythm', which one of the four testing times would you choose?	Želite biti u najboljem stanju za test za koji znate da će biti mentalno iscrpljujuć i trajati dva sata. Posve ste slobodni isplanirati svoj dan. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, koje biste od četiri ponuđena vremena testiranja izabrali?
12. If you went to bed at 11.0 PM at what level of tiredness would you be?	Kad biste pošli u krevet u 23 sata, na kojoj biste razini umora (pospanosti) bili?	If you went to bed at 23h/11 p.m., at what level of tiredness (sleepiness) would you be?	Kad biste pošli u krevet u 23 sata, na kojoj biste razini umora (pospanosti) bili?
13. For some reason you have gone to bed several hours later than usual, but there is no need to get up at any particular time the next morning. Which ONE of the following events are you most likely to experience?	Iz nekog ste razloga otišli u krevet nekoliko sati kasnije nego inače, ali nema razloga za ustajanjem u neko posebno vrijeme sljedećega jutra. Koji ćete od ova četiri događaja najvjerojatnije iskusiti?	For some reason, you have gone to bed several hours later than usual, but there is no reason to get up at a particular time the next morning. Which one of the four following events are you most likely to experience?	Iz nekog ste razloga otišli u krevet nekoliko sati kasnije nego inače, ali nema razloga za ustajanjem u neko posebno vrijeme sljedećega jutra. Koji ćete od ova četiri događaja najvjerojatnije iskusiti?
14. One night you have to remain awake between 4.00-6.00 AM in order to carry out a night watch.	Jedne večeri morate ostati budni između 4 i 6 ujutro da biste obavili noćnu stražu. Nimate obaveza	One night you have to remain awake between 4-6 a.m. in order to carry out a night watch. You	Jedne večeri morate ostati budni između 4 i 6 ujutro da biste obavili noćnu stražu. Nimate obaveza

	You have no commitments the next day. Which ONE of the following alternatives will suit you best?	sljedeći dan. Koja će vam od ponuđenih alternativa najbolje odgovarati?	have no commitments the next day. Which of the following alternatives would suit you best?	sljedeći dan. Koja će vam od ponuđenih alternativa najbolje odgovarati?
15.	You have to do two hours of hard physical work. You are entirely free to plan your day and considering only your own "feeling best" rhythm which ONE of the following times would you choose?	Morate odraditi dva sata teškog fizičkog rada. Posve ste slobodni isplanirati svoj dan. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, koji biste od ponuđenih termina izabrali?	You have to do two hours of hard physical work. You are completely free to plan your day. Considering only your 'feeling best rhythm', which of the following times would you choose?	Morate odraditi dva sata teškog fizičkog rada. Posve ste slobodni isplanirati svoj dan. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, koji biste od ponuđenih vremena izabrali?
16.	You have decided to engage in hard physical exercise. A friend suggests that you do this for one hour twice a week and the best time for him is between 10.0-11.0 PM. Bearing in mind nothing else but your own "feeling best" rhythm how well do you think you would perform?	Odlučili ste se baviti teškom fizičkom vježbom. Prijatelj vam predlaže da se njome bavite jedan sat dva puta tjedno, a za njega je najbolje vrijeme između 22 i 23 sata. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, što mislite kako biste to obavili?	You have decided to engage in hard physical exercise. A friend suggests that you do this for one hour twice a week, and the best time for him is between 10-11 p.m. Considering only your 'feeling best rhythm', how do you think you would perform this?	Odlučili ste se baviti teškom fizičkom vježbom. Prijatelj vam predlaže da se njome bavite jedan sat dva puta tjedno, a za njega je najbolje vrijeme između 22 i 23 sata. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, što mislite kako biste to obavili?
17.	Suppose that you can choose your own work hours. Assume that you worked a FIVE hour day (including breaks) and that your job was interesting and paid by results. Which FIVE CONSECUTIVE HOURS would you select?	Zamislite da sami možete birati svoje radne sate. Pretpostavite da radite pet sati u danu (uključujući stanke), da vam je posao zanimljiv i plaćen po učinku. Koje biste vrijeme izabrali za početak svog radnog vremena?	Imagine that you can choose your own work hours. Assume that you work five hours a day (including breaks) and that your job is interesting and paid by the results. At what time would you choose to begin your workday?	Zamislite da sami možete birati svoje radne sate. Pretpostavite da radite pet sati u danu (uključujući stanke), da vam je posao zanimljiv i plaćen po učinku. Koje biste vrijeme izabrali za početak svog radnog vremena?
18.	At what time of the day do you think that you reach your "feeling best" peak?	U kojem dobu dana smatrate da se najbolje osjećate?	At what time of the day do you think you feel your best?	U koje doba dana smatrate da se najbolje osjećate?
19.	One hears about "morning" and "evening" types of people. Which ONE of these do you consider yourself to be?	Ako čujete za izraz „jutarnji“ i „večernji“ tipovi ljudi, kako biste sebe svrstali?	If you ever heard of the terms 'morning' and 'evening' types of people, how would you categorize yourself?	Ako biste ikad čuli za izraze „jutarnji“ i „večernji“ tipovi ljudi, kako biste sebe svrstali?

Table 2. The comparison of two forward translations into Croatian from the English original

Forward translation 1	Forward translation 2
1. Kad biste se vodili samo svojim ritmom u kojem se najbolje osjećate, kada biste se ustali kada bi bili posve slobodni isplanirati svoj dan?	Kad biste se vodili samo svojim ritmom u kojem se najbolje osjećate, kada biste se ustali kada bi bili posve slobodni isplanirati svoj dan?
2. Kad biste se vodili samo svojim ritmom, u koliko sati biste se probudili kad biste mogli potpuno samostalno planirati dan?	Kad biste se vodili samo svojim ritmom u kojem se najbolje osjećate, kada biste otišli spavati kada biste bili posve slobodni isplanirati svoju večer?
3. Ako postoji točno vrijeme u koje se morate probuditi ujutro, koliko ste ovisni o alarmu budilice da vas probudi?	Ako postoji specifično vrijeme kada morate ujutro ustati, u kojoj ste mjeri ovisni o tome da vas probudi budilica?
4. Ako se pretpostavi da je danas prosječan, uobičajen dan, koliko vam je jednostavno ustajanje ujutro?	Ako se pretpostave adekvatni okolišni uvjeti, koliko vam se lako ujutro ustati?
5. Koliko se osjećate koncentrirano prvih pola sata nakon jutarnjeg buđenja?	Koliko se budno osjećate u prvih pola sata nakon buđenja ujutro?
6. Kakav imate apetit tijekom prvih pola sata nakon jutarnjeg buđenja?	Kakav vam je apetit u prvih pola sata nakon buđenja ujutro?
7. Koliko se umorno osjećate tijekom prvih pola sata budnosti?	Koliko se umorno osjećate u prvih pola sata nakon buđenja ujutro?
8. Kad nemate nikakvih obaveza sljedeći dan, koliko kasnije odlazite u krevet u usporedbi s vašim uobičajenim vremenom odlaska u krevet?	Kada sutradan nemate obaveza, kada odlazite u krevet u usporedbi sa uobičajenim odlaskom u krevet?
9. Odlučili ste se uključiti u umjereno fizičko vježbanje. Prijatelj vam predloži da vježbate jedan sat dva puta tjedno i najbolje vrijeme za to jest između 7:00 i 8:00 ujutro. Ako razmatrate samo svoj ritam, koliko mislite da biste dobro vježbali?	Odlučili ste se baviti nekom fizičkom aktivnošću. Prijatelj vam predlaže da se njome bavite po sat vremena dva puta tjedno u, a za njega je najbolje vrijeme između 7 i 8 sati. Imajući na umu isključivo vaš ritam u kojem se najbolje osjećate, što mislite kako biste to obavili?
10. U koje se doba noći osjećate umorno i pospano?	U koje se doba večeri osjećate umorno i kao posljedicu toga osjećate potrebu za snom?
11. Želite biti u najboljoj formi za ispit za koji znate da će biti mentalno iscrpan i da će trajati dva sata. Kad biste mogli slobodno planirati cijeli	Želite biti u najboljem stanju za test za koji znate da će biti mentalno iscrpljujuć i trajati dva sata. Posve ste slobodni isplanirati svoj dan.

dan i vodeći se samo svojim ritmom, koje biste vrijeme pisanja ispita izabrali?	Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, koje biste vrijeme testiranja, jedno od četiri ponudena, izabrali?
12. Ako biste legli u 23:00, koliko biste bili umorni?	Kad biste pošli u krevet u 23 sata, na kojoj biste razini umora (pospanosti) bili?
13. Zbog nekog ste razloga legli nekoliko sati kasnije nego inače, ali ne postoji razlog za buđenje u neko određeno vrijeme sljedećega dana. Koji ćete od sljedećih događaja vjerojatno doživjeti?	Iz nekog ste razloga otišli u krevet nekoliko sati kasnije nego inače, ali nema razloga za ustajanje u neko posebno vrijeme sljedećega jutro. Koji od ova četiri događaja ćete najvjerojatnije iskusiti?
14. Jedne noći morate ostati budni između 4:00 i 6:00 da biste odradili noćnu stražu. Nemate obaveza sljedeći dan. Koja vas od sljedećih opcija najbolje opisuje?	Jedne večeri morate ostati budni između 4 i 6 ujutro da biste obavili noćnu stražu. Nemate obaveza sljedeći dan. Koja će vam od ponuđenih alternativa najbolje odgovarati?
15. Morate odraditi dva sata teškog fizičkog rada. Možete potpuno slobodno planirati svoj dan. Uzimajući u obzir samo svoj ritam, koje biste vrijeme odabrali?	Morate odraditi dva sata teškog fizičkog rada. Posve ste slobodni isplanirati svoj dan. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, koji biste od ponuđenih termina izabrali?
16. Odlučili ste se uključiti u tešku fizičku aktivnost. Prijatelj vam predloži da vježbate jedan sat dva puta tjedno i najbolje vrijeme za to jest između 10:00 i 11:00 ujutro. Ako razmatrate samo svoj ritam, koliko mislite da biste dobro vježbali?	Odlučili ste se baviti teškom fizičkom vježbom. Prijatelj vam predlaže da se njome bavite jedan sat dva puta tjedno, a za njega je najbolje vrijeme između 22 i 23 sata. Isključivo s obzirom na vaš ritam u kojem se najbolje osjećate, što mislite kako biste to obavili?
17. Pretpostavite da možete birati svoje radno vrijeme. Zamislite da radite pet sati dnevno (uključujući pauze), da vam je posao zanimljiv i da se plaća po učinku. Kojih biste pet UZASTOPNIH sati odabrali?	Zamislite da sami možete birati svoje radne sate. Pretpostavite da radite PET sati u danu (uključujući stanke), da vam je posao zanimljiv i plaćen po učinku. Kojih biste PET UZASTOPNIH SATI izabrali?
18. U koje doba dana mislite da se osjećate najbolje?	U kojem dobu dana smatrate da se najbolje osjećate?
19. Ako čujete za izraz „jutarnji“ i „večernji“ tipovi ljudi, kako biste sebe svrstali?	Često se može čuti o „jutarnjim“ i „noćnim“ tipovima ljudi. Što mislite, koji ste vi tip?

Appendix 1. The final version of the Croatian Morningness-Eveningness Questionnaire

MORNINGNESS/EVENINGNESS QUESTIONNAIRE

Upute:

1. Pažljivo pročitajte svako pitanje prije nego odgovorite na njega.
2. Odgovorite na SVA pitanja.
3. Na pitanja odgovarajte numeričkim redom.
4. Na svako bi pitanje trebalo odgovoriti neovisno o odgovorima na druga pitanja. NE vraćajte se unatrag i ne provjeravajte već dane odgovore.
5. Većina pitanje ima nekoliko ponuđenih odgovora. Kod svakoga pitanja križić stavite uz samo JEDAN odgovor. Pojedina pitanja imaju skalu umjesto ponuđenih odgovora. Stavite križić na prikladno mjesto na skali.
6. Na svako pitanje odgovorite što je iskrenije moguće. Vaši odgovori i rezultati držat će se u strogoj tajnosti.
7. Slobodno ostavite komentare ispod svakoga pitanja na mjestu predviđenome za to.

1. Vođeni samo osobnim ritmom u kojemu se najbolje osjećate, u koje biste se vrijeme ustali kada biste bili posve slobodni isplanirati svoj dan?

- A) 5:00 – 6:30
- B) 6:30 – 7:45
- C) 7:45 – 9:45
- D) 9:45 – 11:00
- E) 11:00 – 12:00

2. Vođeni samo osobnim ritmom u kojemu se najbolje osjećate, u koje biste vrijeme otišli spavati kada biste bili posve slobodni isplanirati svoju večer?

- A) 20:00 – 21:00
- B) 21:00 – 22:15
- C) 22:15 – 00:30
- D) 00:30 – 1:45
- E) 1:45 – 3:00

3. Ako postoji određeno vrijeme kada morate ustati ujutro, u kojoj ste mjeri ovisni o tome da vas budi budilica?

- A) Nimalo ovisan/ovisna
- B) Pomalo ovisan/ovisna
- C) Poprilično ovisan/ovisna
- D) Veoma ovisan/ovisna

4. Pod pretpostavkom da su okolišni uvjeti odgovarajući, koliko vam se lako ujutro ustati?

- A) Nimalo lako
- B) Ne veoma lako
- C) Poprilično lako
- D) Veoma lako

5. Koliko se ujutro budno osjećate unutar prvih pola sata nakon buđenja?

- A) Nimalo budno
- B) Pomalo budno
- C) Poprilično budno
- D) Veoma budno

6. Kakav vam je ujutro apetit unutar prvih pola sata nakon buđenja?

- A) Veoma slab
- B) Poprilično slab
- C) Poprilično dobar
- D) Veoma dobar

7. Koliko se ujutro umorno osjećate unutar prvih pola sata nakon buđenja?

- A) Veoma umorno
- B) Poprilično umorno
- C) Poprilično osvježeno
- D) Veoma osvježeno

8. Kad nemate nikakvih obveza sljedeći dan, koliko kasnije odlazite u krevet u usporedbi s uobičajenim vremenom vašega odlaska na spavanje?

- A) Rijetko ili nikad kasnije
- B) Manje od jedan sat kasnije
- C) 1-2 sata kasnije
- D) Više od dva sata kasnije

9. Odlučili ste se baviti nekom fizičkom aktivnošću. Prijatelj vam predlaže da se njome bavite po sat vremena dva puta tjedno, a za njega je najbolje vrijeme između 7 i 8 sati. Imajući na umu isključivo vaš ritam u kojemu se najbolje osjećate, što mislite – kakva bi bila razina vaše izvedbe?

- A) Dobro bih to obavio.
- B) Relativno bih to dobro obavio.
- C) Bilo bi mi naporno.
- D) Bilo bi mi veoma naporno.

10. U koje se doba večeri osjećate umorno i kao posljedicu toga osjećate potrebu za snom?

- A) 20:00-21:00
- B) 21:00-22:15
- C) 22:15-00:45
- D) 00:45-2:00
- E) 2:00-3:00

11. Želite biti u najboljem stanju za test za koji znate da će biti mentalno zahtjevan i da će trajati dva sata. Posve ste slobodni isplanirati svoj dan. Uzevši u obzir isključivo ritam u kojemu se najbolje osjećate, koje biste od četiri ponuđena vremena testiranja izabrali?

- A) 8:00-10:00
- B) 11:00-13:00
- C) 15:00-17:00

D) 19:00-21:00

12. Kad biste pošli u krevet u 23 sata, na kojoj biste razini umora (pospanosti) bili?

- A) Nimalo umoran/umorna
- B) Pomalo umoran/umorna
- C) Poprilično umoran/umorna
- D) Veoma umoran/umorna

13. Iz nekog ste razloga otišli u krevet nekoliko sati kasnije nego inače, ali nemate razloga ustati u neko posebno vrijeme sljedećega jutra. Koji je od četiri navedena događaja najvjerojatniji u vašemu slučaju?

- A) Probudit ću se u uobičajeno vrijeme i neću ponovno zaspati.
- B) Probudit ću se u uobičajeno vrijeme i nakon toga zadrijemati.
- C) Probudit ću se u uobičajeno vrijeme, ali ću ponovno zaspati.
- D) Probudit ću se nakon uobičajenog vremena.

14. Jedne večeri morate ostati budni između 4 i 6 ujutro da biste obavili noćnu stražu. Nemate obaveza sljedeći dan. Koja će vam od ponuđenih alternativa najbolje odgovarati?

- A) Ne bih otišao/otišla u krevet dok straža ne bi bila gotova.
- B) Odrijemao/odrijemala bih prije i spavao/spavala poslije.
- C) Dobro bih se naspavao/naspavala prije i odrijemao/odrijemala poslije.
- D) Spavao/spavala bih samo prije straže.

15. Morate odraditi dva sata teškog fizičkog rada. Posve ste slobodni isplanirati svoj dan. Uzevši u obzir isključivo ritam u kojemu se najbolje osjećate, koje biste od ponuđenih vremena izabrali?

- A) 8:00 - 10:00
- B) 11:00 - 13:00
- C) 15:00 - 17:00
- D) 19:00 - 21:00

16. Odlučili ste se baviti teškom fizičkim treningom. Prijatelj vam predlaže da se time bavite dva puta tjedno po jedan sat, a za njega je najbolje vrijeme između 22 i 23 sata. Uzevši u obzir isključivo ritam u kojem se najbolje osjećate, što mislite – koliko kvalitetno biste to obavili?

- A) Dobro bih to obavio.
- B) Obavio bih to relativno dobro.
- C) Bilo bi mi naporno.
- D) Bilo bi mi veoma naporno.

17. Zamislite da možete sami birati svoje radno vrijeme. Pretpostavite da radite pet sati u danu (uključujući stanke), da vam je posao zanimljiv i plaćen po učinku. Koje biste vrijeme izabrali za početak svog radnog vremena?

- A) 4:00 – 8:00 sati

B) 8:00 – 9:00 sati

C) 9:00 – 14:00 sati

D) 14:00 – 17:00 sati

E) 17:00 – 4:00 sata

18. U koje doba dana smatrate da se najbolje osjećate?

- A) 5:00 – 8:00 sati
- B) 8:00 – 10:00 sati
- C) 10:00 – 17:00 sati
- D) 17:00 – 22:00 sata
- E) 22:00 – 5:00 sati

19. Moguće je čuti za „jutarnji“ i „večernji“ tip ljudi, u koji biste od njih svrstali sebe?

- A) Zasigurno „jutarnji“ tip
- B) Više sam „jutarnji“ nego „večernji“ tip.
- C) Više sam „večernji“ nego „jutarnji“ tip.
- D) Zasigurno sam „večernji“ tip.

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