

# The effects of migraine on driving safety, driving habits, and risk perception

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## ABSTRACT

**BACKGROUND:** This study aimed to investigate the multidimensional effects of migraine on driving by evaluating the driving habits of individuals with migraine and their adherence to safety strategies.

**METHODS:** This multicenter, hospital-based, cross-sectional study was conducted between May and July 2024. Volunteers aged 18-65 years with a diagnosis of migraine and a history of driving were included. Detailed face-to-face interviews were conducted using a form adapted from the Driving Habit Questionnaire to assess demographic characteristics, driving experience, driving preferences, and driving habits. The quality of life of drivers with migraine was assessed using the Headache Impact Test-6 (HIT-6).

**RESULTS:** Of the 2,548 patients evaluated in the study, 1,333 had driving experience. The mean age of the drivers was 36.7±9.5 years, and 64.4% were female. Patients with migraine drove approximately 4.8 days per week, and 64.1% had more than 10 years of driving experience. Overall, participants demonstrated good compliance with safety precautions: 92.2% always fastened their seat belts, and 85.2% regularly checked their rearview mirrors before driving. However, 28.8% of patients always preferred to be the driver, and 26.3% reported driving faster than the speed limit and contrary to traffic flow. The mean HIT-6 score was 62.2±7.1. Male sex, smoking, alcohol use, longer driving experience, and lower HIT-6 scores were associated with more frequent driving, higher driving speeds, and a greater tendency to perceive themselves as better drivers.

**CONCLUSION:** Our findings suggest that migraine influences driving behavior by affecting driving frequency, speed preferences, and subjective driving confidence. These factors should be considered in clinical assessments.

**Keywords:** Driving preferences; driving quality; driving speed; migraine; rearview mirror; seat belt.

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## INTRODUCTION

Migraine is a highly prevalent and complex neurological disorder worldwide that significantly impairs individuals' functioning and quality of life.<sup>[1]</sup> Its clinical presentation is not limited to headache; rather, it is characterized by a multidimensional disability profile involving neurological, autonomic, and cognitive symptoms occurring during the prodromal, ictal, and postdromal phases.<sup>[1-3]</sup> Dysfunction in sensory input processing and multisensory integration mechanisms, particularly within the central nervous system, may negatively affect the performance of individuals with migraine in cognitively demanding tasks.<sup>[4,5]</sup> Motor vehicle operation is a complex cognitive-motor activity that requires the simultaneous integration of attentional control, visuospatial processing, executive functioning, and psychomotor coordination. These processes may be directly or indirectly impaired by migraine-related dysfunctions.<sup>[6,7]</sup> Therefore, systematic evaluation of driving behavior in individuals with migraine is necessary, both in terms of individual functional impairment and broader societal traffic safety.

Recent epidemiological studies suggest that individuals with migraine frequently avoid driving or express concerns about driving safety. For example, data from the OVERCOME Japan study (Observational Survey of the Epidemiology, Treatment and Care of Migraine) showed that 43.9% of individuals with migraine reported that migraine symptoms negatively affected their driving performance, and 32.7% reported consciously avoiding driving due to migraine in the previous year. Notably, more than 20% of participants reported continuing to drive even during severe migraine attacks.<sup>[2]</sup> However, findings in the literature regarding the association between migraine and road traffic accidents (RTAs) are inconsistent,<sup>[2,8-11]</sup> highlighting the need for further investigation from both public health

and traffic safety perspectives. Advances in vehicle technology and road infrastructure have shifted the attribution of many traffic accidents from technical causes to human error. In fact, according to 2023 data from the Turkish Statistical Institute (TÜİK), drivers were identified as primarily responsible in 88.9% of traffic accidents.<sup>[12]</sup> These data suggest that individuals with migraine may exhibit behaviors that could jeopardize driving safety in the context of daily life obligations and that migraine-related disability may not be adequately addressed in current clinical assessments of driving safety. The current literature on the effects of migraine on driving habits and safety is limited, heterogeneous, and largely observational.

This study aimed to assess the driving habits of individuals with migraine, the degree of disability experienced during attack periods, and their adherence to safety strategies. By adopting a multidimensional approach to understanding how migraine affects driving, this research seeks to enhance clinical management and inform public policy initiatives.

## MATERIALS AND METHODS

This cross-sectional, multicenter study was conducted in a hospital-based setting between May and July 2024. Fifty-seven neurologists, actively involved in patient follow-up and experienced in the diagnosis and management of migraine, working across 40 different clinics, assessed patients using a structured questionnaire based on the Driving Habit Questionnaire<sup>[13]</sup> (Appendix 1) after obtaining informed consent.

The first section consisted of 21 questions evaluating patients' demographic and migraine-related characteristics. Pain intensity was assessed using the Visual Numeric Scale (VNS). The second section included 53 questions addressing the types of vehicles used; driving experience (driving frequency,

**Table 1.** Headache Impact Test-6 (HIT-6)<sup>[14]</sup>

Questions	Frequency				
	Never	Rarely	Sometimes	Very often	Always
1. When you have headaches, how often is the pain severe?					
2. How often do headaches limit your ability to perform usual daily activities, including household work, work, school, or social activities?					
3. When you have a headache, how often do you wish you could lie down?					
4. In the past four weeks, how often have you felt too tired to perform work or daily activities because of your headaches?					
5. In the past four weeks, how often have you felt fed up or irritated because of your headaches?					
6. In the past four weeks, how often have headaches limited your ability to concentrate on work or daily activities?					
Points	6 points	8 points	10 points	11 points	13 points

The HIT-6 is a tool used to measure the impact of headaches on an individual's ability to function at work, school, home, and in social situations. Each question requires one selected response. The total HIT-6 score ranges from 36 to 78, with higher scores indicating greater headache-related disability.

years of driving, anxiety about accidents); driving preferences (frequency of being the driver); driving behaviors (rearview mirror use, seat belt use, driving speed); perceived driving quality, etc.

Following these two sections, the third section assessed driving-related disability using the Headache Impact Test-6 (HIT-6) (Table 1),<sup>[14]</sup> an instrument designed to capture patients' perspectives. Physicians administered the questionnaires during face-to-face interviews lasting approximately 30 minutes.

Patients with migraine who had a history of driving were included in this analysis. Migraine was diagnosed according to the International Classification of Headache Disorders, 3rd edition (ICHD-3) criteria.<sup>[1]</sup> Data reliability and consistency were ensured through a cross-check process conducted by three neurologists and a biostatistician.

The prevalence of migraine in neurology outpatient clinics has been reported as 24.9%.<sup>[15]</sup> Based on this prevalence, a sample size analysis was performed using G\*Power to ensure adequate statistical power to detect meaningful differences. It was calculated that at least 1,337 patients should be included, assuming a 2% margin of error. Accordingly, 2,548 individuals diagnosed with migraine were screened, and 1,583 who met the eligibility criteria regarding motor vehicle use were included in the study. The study flowchart is presented in Figure 1. This study, conducted under the short title "Mig-Drive," was approved by the Acibadem University Medical Research Ethics Committee (28.03.2024) (Decision No: 2024-5/204). The study was conducted in accordance with the principles of the Declaration of Helsinki.

**Exclusion Criteria**

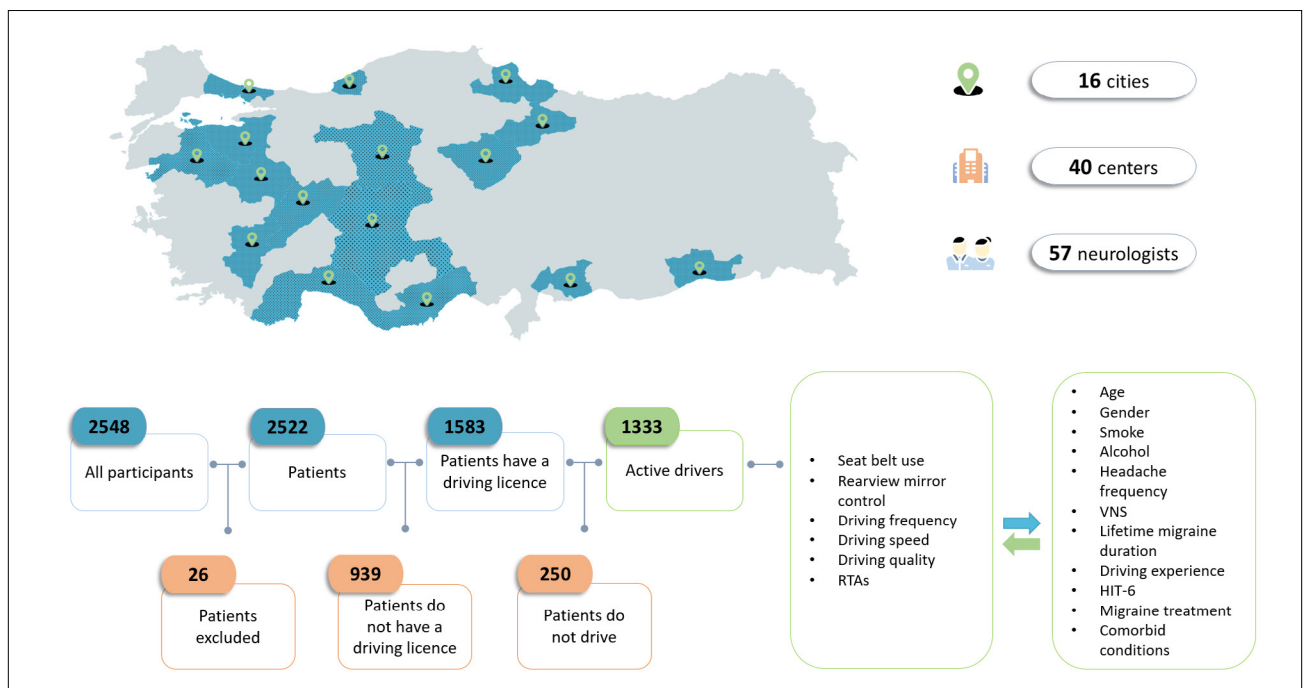
- Age <18 years (individuals under 18 are not eligible for a driver's license)
- Age >65 years (to minimize age-related confounding factors)
- Absence of a definite migraine diagnosis according to ICHD-3 criteria confirmed by a neurologist
- Inability to provide informed consent or respond to questions due to impaired consciousness.

**Headache Impact Test-6 (HIT-6)**

The HIT-6 is a brief, structured self-report scale with established validity and reliability, designed to evaluate the impact of migraine on an individual's daily life—particularly functional impairment and time loss—from the patient's perspective.<sup>[16,17]</sup> The scale consists of six items reflecting the impact of headaches on quality of life; each item is rated on a five-point Likert-type scale. The total score is directly proportional to headache severity. The Turkish validity and reliability study of the scale was conducted by Dikmen et al.<sup>[18]</sup>

**Statistical Analysis**

The normality of continuous variables was assessed using the Shapiro–Wilk test. Parametric methods were applied to normally distributed variables, whereas non-parametric methods were used for variables that did not meet the normality assumption. For comparisons between two independent groups, the Independent Samples t-test or the Mann–Whitney U test was used. For comparisons involving more than two groups,



**Figure 1.** Flowchart of the study, patient distribution, and analyzed parameters. RTA: Road traffic accidents; VNS: Visual Numeric Scale; HIT-6: Headache Impact Test-6.

one-way analysis of variance (ANOVA) or the Kruskal–Wallis test was performed. Tukey's post hoc test was applied for multiple comparisons. Linear relationships between continuous variables were evaluated using Pearson's or Spearman's rho correlation coefficients, as appropriate. Categorical variables were analyzed using the  $\chi^2$  test or Fisher's exact test. All statistical analyses were conducted using R software (version 4.5.1; R Foundation for Statistical Computing, Vienna, Austria). Statistical significance was set at  $p<0.05$ .

## RESULTS

Of the 2,548 patients evaluated in the study, 1,333 had driving experience (Fig. 1). The mean age of the drivers was  $36.7\pm 9.5$  years (range: 18-65 years), and 64.4% were female. Among the drivers, 10.6% had less than two years of driving experience, 25.3% had 3-9 years, and 64.1% had more than 10 years of driving experience. Headache characteristics during driving and non-driving periods, as well as other clinical features, are presented in Table 2.

### Safety Measures

The study found that 92.2% of drivers always fastened their seat belts while driving (Fig. 2), whereas only 0.3% reported never doing so. Females were more likely than males to fasten their seat belts, with rates of 95.6% and 86.1%, respectively ( $p<0.001$ ). The mean age of those who always fastened their seat belts was higher than that of those who did so only sometimes ( $37.0\pm 9.4$  years vs.  $33.0\pm 9.8$  years;  $p<0.001$ ). Non-smokers were more likely to fasten their seat belts consistently (94.6% vs. 88.8%), whereas smokers were more likely to fasten them only occasionally (10.7% vs. 5.3%;  $p<0.001$ ). Among individuals with migraine, those who never fastened their seat belts reported a higher mean monthly headache

frequency ( $p<0.001$ ). Additionally, individuals who always fastened their seat belts had a mean migraine duration that was 3.64 years longer than those who fastened them only occasionally ( $p<0.001$ ). There was no statistically significant association between lifetime migraine duration and anxiety about having an accident.

Before driving, 85.2% of participants reported always checking their rearview mirrors (Fig. 2), whereas 0.7% reported never doing so. No other factors, significant associations were found between this behavior and other factors, including sex, VNS score, and HIT-6 score.

### Driving Preferences

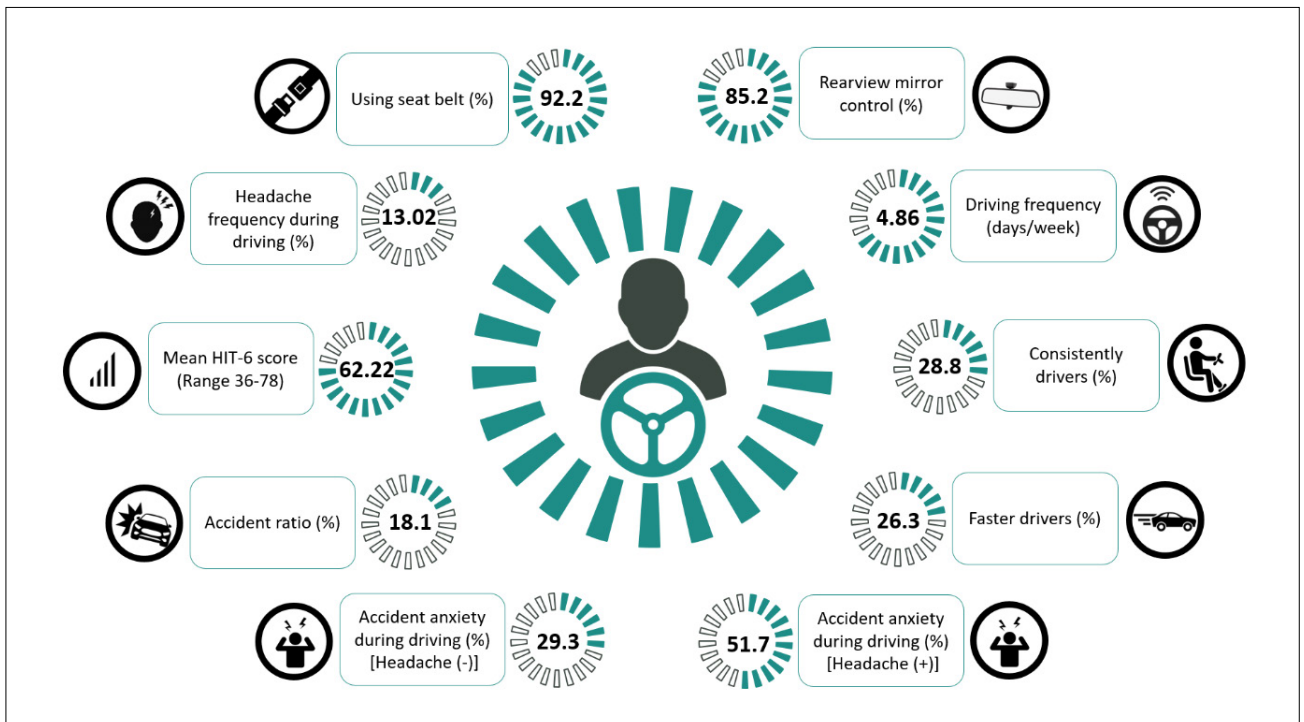
When evaluated according to driving frequency, 28.8% of patients reported always driving, 41.6% often driving, 28% sometimes driving, and 1.7% never preferring to drive. The impact of selected migraine-related clinical characteristics on driving frequency, considered a dependent behavioral variable, is summarized in Table 2. When traveling by car, male patients were more likely to drive than female patients (48.7% vs. 17.8%;  $p<0.001$ ). Driving frequency increased with age up to a certain point but declined significantly in older age groups. A similar pattern was observed with respect to driving experience (Table 2). During driving, VNS scores increased with driving frequency. However, driving frequency decreased as HIT-6 impact severity increased (Table 2). Participants who always preferred to drive had higher rates of smoking (33.7%,  $p<0.001$ ) and alcohol consumption (48.9%,  $p=0.001$ ). As expected, the rate of traffic accidents was higher among drivers who always drove (35.9% vs. 28%), whereas it was lower among those who sometimes drove (20.8% vs. 28.4%;  $p=0.013$ ).

Driving speed relative to the general flow of traffic was ana-

**Table 2.** Comparison of the frequency of being a driver with age, headache and driving characteristics, and HIT-6 score

	Frequency of a being driver					p-value
	Total	Never <sup>(a)</sup>	Sometimes <sup>(b)</sup>	Often <sup>(c)</sup>	Always <sup>(d)</sup>	
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	
Age	36.7±9.5	41.2±11.5 <sup>b</sup>	35.1±10.4 <sup>ad</sup>	36.5±8.6 <sup>d</sup>	38.4±9.3 <sup>bc</sup>	<0.001
Lifetime migraine duration (years)	11.5±9.2	13.4±10.7	11.0±9.0	11.4±8.7	12.0±9.9	0.366
Headache frequency (last 3 months)	8.8±7.2	10.4±6.6	8.2±7.3	8.1±6.8	7.9±6.7	0.411
VNS score	7.5±1.5	7.7±1.6	7.5±1.6	7.4±1.4	7.6±1.5	0.418
Driving experience (years)	15.4±10.9	18.7±15.6 <sup>b</sup>	11.4±9.8 <sup>acd</sup>	14.2±8.8 <sup>bd</sup>	17.3±9.6 <sup>bc</sup>	<0.001
Driving frequency (times/month)	19.1±10.5	3.4±7.8 <sup>cd</sup>	8.2±7.6 <sup>acd</sup>	22.5±7.7 <sup>abd</sup>	25.6±7.2 <sup>abc</sup>	<0.001
Headache frequency while driving (%)	13.0±20.5	12.8±29.9	14.9±25.2	12.4±18.4	11.9±17.4	0.207
VNS score while driving	6.0±2.3	6.1±3.6	5.4±2.5 <sup>cd</sup>	6.0±2.0 <sup>b</sup>	6.4±2.2 <sup>b</sup>	<0.001
HIT-6 score	62.2±7.0	65.9±5.1 <sup>d</sup>	63.2±7.1 <sup>d</sup>	62.3±6.7 <sup>d</sup>	60.8±7.3 <sup>abc</sup>	<0.001

SD: Standard deviation; VNS: Visual Numeric Scale; HIT-6: Headache Impact Test-6. Superscript letters indicate subsets of categories whose column proportions or means differ significantly at the  $p<0.05$  level. <sup>a</sup>Never; <sup>b</sup>Sometimes; <sup>c</sup>Often; <sup>d</sup>Always.



**Figure 2.** Key findings of the study. *HIT-6: Headache Impact Test-6.*

lyzed across five self-reported categories: much faster, somewhat faster, about the same, somewhat slower, and much slower. Overall, 26.3% of drivers reported traveling faster than the traffic flow, while 16.3% reported driving more slowly. Men were more likely than women to drive faster than the general traffic flow (36.5% vs. 20.6%), whereas a higher proportion of women drove at speeds consistent with traffic flow (65.4% vs. 34.6%) or more slowly than men (21.1% vs. 7.6%); these differences were statistically significant ( $p < 0.001$ ). Participants who reported driving much faster than traffic were more likely to smoke (4.2% vs. 1.8% among those driving at or below the traffic speed;  $p = 0.012$ ). Similarly, those driving somewhat faster had higher rates of alcohol consumption (33.6% vs. 21.4%);  $p < 0.001$ ). In contrast, alcohol use was less prevalent among drivers maintaining speeds similar to the traffic flow (50.7% vs. 58.8%;  $p < 0.001$ ). Overall, 29.3% of drivers reported anxiety about having an accident while driving; this proportion increased to 51.7% when driving during a headache episode (Fig. 2). Anxiety about having an accident was less common among those driving at speeds consistent with traffic flow (27.4% vs. 21.9%). In contrast, individuals driving “somewhat slower” (18.2% vs. 11.9%) or “somewhat faster” (27.4% vs. 21.9%) than the traffic flow were more likely to report anxiety ( $p = 0.001$ ). Interestingly, no significant differences in anxiety levels were observed among those driving “much faster” or “much slower” than traffic ( $p > 0.05$ ). When drivers experienced headaches, those driving “much faster” reported lower levels of anxiety about having an accident (1.9% vs. 3.8%). In contrast, anxiety was higher among

those driving “somewhat slower” (17.4% vs. 9.7%) and “much slower” (3.7% vs. 1.4%) compared to those driving in line with the traffic flow ( $p < 0.001$ ). Analysis of accident rates showed a lower incidence among drivers traveling at speed “parallel to the traffic flow” (51.1% vs. 58.9%), whereas the rate was higher among those driving “somewhat faster” (29.9% vs. 22.8%;  $p = 0.032$ ). Post hoc comparisons indicated a close association between driving speed and driving experience. Drivers traveling somewhat slower than the traffic flow had, on average, 2.3 fewer years of driving experience than those driving at similar speeds ( $p = 0.028$ ) and 3.0 fewer years than those driving somewhat faster ( $p = 0.007$ ). A negative correlation was observed between the proportion of headaches occurring while driving and driving speed: as headache frequency during driving increased, reported driving speed decreased ( $p = 0.001$ ). The mean HIT-6 score among patients driving at much slower speeds ( $66.2 \pm 5.9$ ) was 4.2 points higher than that of those driving at speeds similar to traffic ( $p = 0.006$ ) and 4.8 points higher than that of those driving somewhat faster ( $p = 0.001$ ). However, no statistically significant association was found between VNS scores and driving speed.

Subjective driving quality was evaluated across five categories: excellent, good, average, fair, and poor. Men were more likely than women to rate their driving as “excellent” (20.7% vs. 7.6%) or “good” (60.8% vs. 51.3%), whereas women were more likely to rate their driving as “average” (35% vs. 17.5%) or “fair” (5.4% vs. 0.8%); these differences were statistically significant ( $p < 0.001$ ). Individuals who rated their driving quality as “excellent” were more likely to smoke (16.2% vs. 9.5%;

$p=0.006$ ) and consume alcohol (18.8% vs. 10.9%;  $p=0.010$ ). As HIT-6 impact severity increased, drivers tended to rate their driving quality lower ( $p=0.001$ ). Those who rated their driving as “excellent” reported lower levels of anxiety about having an accident (8.7% vs. 13.7%), whereas those who rated their driving as “average” reported higher levels of accident-related anxiety (33.5% vs. 26.9%;  $p=0.007$ ). In the presence of a headache, individuals who rated their driving as “excellent” reported lower anxious about having an accident (8.6% vs. 16.4%), and those who rated their driving as “good” also demonstrated lower anxiety levels (51.3% vs. 57.6%). In contrast, participants who rated their driving as “average” (34% vs. 23.8%) or “fair” (5.3% vs. 1.9%) reported higher levels of accident-related anxiety ( $p<0.001$ ). Post hoc analysis confirmed the expected association between driving quality and driving experience. Individuals who rated their driving quality as “fair” had, on average, 4.3 fewer years of driving experience than those who rated it as “excellent” ( $p=0.045$ ). Similarly, those with “average” driving quality had 3.0 fewer years of experience than those with “good” driving quality ( $p<0.001$ ) and 4.9 fewer years than those with “excellent” driving quality ( $p<0.001$ ). The mean VNS score among individuals with “average” driving quality was 0.3 points lower than that of those with “good” driving quality ( $p=0.008$ ) and 0.5 points lower than that of those with “excellent” driving quality ( $p=0.001$ ). Furthermore, driving quality declined as HIT-6 scores increased ( $p=0.001$ ). In post hoc analysis, the mean HIT-6 score for individuals with “fair” driving quality ( $64.9\pm 6.4$ ) was 2.9 points higher than that of those with “good” driving quality ( $p=0.032$ ) and 3.9 points higher than that of those with “excellent” driving quality ( $p=0.005$ ).

## DISCUSSION

This study comprehensively examined the driving habits, safety behaviors, and migraine-related driving experiences of 1,333 individuals with migraine. Most participants demonstrated appropriate safety behaviors, such as fastening seat belts and checking rearview mirrors; however, these behaviors were influenced by factors including age, sex, and smoking status. Women generally preferred to drive at speeds consistent with or slower than traffic flow, whereas men tended to drive faster. Driving quality was closely associated with both driving experience and HIT-6 scores. While greater migraine-related quality-of-life burden was negatively associated with driving quality and driving frequency, it was positively associated with driving experience.

Safe motor vehicle operation requires a balanced integration of internal and external factors; safe driving depends on sustained attention as well as stable physiological and psychological conditions. In practice, however, a lack of awareness and inaccurate risk perception may lead individuals to underestimate these requirements.<sup>[19]</sup> Despite its clinical and behavioral relevance, the relationship between driving and migraine has been largely overlooked in the literature. A review examining

drivers' perceptions of how specific health conditions affect driving performance identified a notable discrepancy between perceived crash risk and actual driving behavior. In a cross-sectional study conducted in Spain, 63% of drivers reported that headaches or migraine significantly impaired their driving performance.<sup>[20]</sup> Similarly, an Italian study of patients with episodic migraine found that approximately 15% reported serious driving-related difficulties.<sup>[21]</sup> In Japan, 43.9% of individuals with migraine indicated that pain and associated symptoms affected their ability to drive at least some of the time.<sup>[2]</sup>

Given that driving involves complex cognitive, perceptual, and motor processes, recent research has increasingly focused on individual impairments and medical conditions that may contribute to distracted driving.<sup>[6]</sup> Migraine attacks frequently occur outside the home, and concerns about driving safety during attacks may prompt behavioral adaptations, including seeking treatment, modifying driving preferences, or avoiding driving altogether. In this context, the present study is particularly valuable in its real-world assessment of driving habits among individuals with migraine.

A small study conducted in the United Arab Emirates (UAE) reported that 72.5% of drivers with migraine were male.<sup>[8]</sup> In contrast, 64.4% of participants in our study were female. Additionally, nearly two-thirds of our sample reported more than 10 years of driving experience. The UAE study also found that 72.5% of drivers with migraine experienced at least one attack per month, and 21.2% reported at least one attack per week. In our study, 70.6% of participants reported experiencing at least one migraine attack while driving during their lifetime. The occurrence of headaches while driving has been rarely addressed in the existing literature; in our cohort, headaches were reported during 13.02% of driving periods.

### Migraine and Seat Belt Use

In this study, 92.2% of drivers reported consistently fastening their seat belts while driving. However, certain subgroups were less likely to do so, including males, younger drivers, smokers, and individuals with more frequent headaches. Interestingly, participants with a longer history of migraine were more likely to fasten their seat belts consistently, although this group did not report increased anxiety about having an accident. According to 2024 data from the United States, the overall seat belt use rate was 91.2%, closely aligning with our findings. Approximately 50% of the 23,959 passengers who died in traffic accidents that year were not wearing seat belts.<sup>[22]</sup> A report from the Turkish National Traffic Safety Program (2001) indicated that only 16% of drivers involved in urban traffic accidents and 35% of those involved in intercity accidents were using seat belts; furthermore, 81% of drivers who died in these accidents were not wearing seat belts.<sup>[23]</sup> Similarly, 2023 data from TÜİK show that failure to use a helmet or seat belt is the most common passenger-related cause of injury and fatal traffic accidents, with an incidence rate of 27.4%.<sup>[24]</sup> In a study conducted in the UAE in 2000, only 12.5% of drivers with migraine reported consistent seat belt

use, and only 6.3% had been wearing a seat belt at the time of the accident.<sup>[8]</sup> These findings suggest that although overall seat belt use has improved over time—likely due to awareness campaigns and in-vehicle warning systems—important gaps remain, particularly regarding behaviors at the time of accidents. Our study identified specific high-risk subgroups less likely to use seat belts, a finding not previously emphasized in the literature. Younger male drivers were particularly prominent in this regard. Previous research indicates that young drivers, especially males, tend to overestimate their driving abilities and underestimate accident risk, thereby increasing their likelihood of engaging in risky behaviors.<sup>[25,26]</sup> This finding is consistent with known behavioral patterns associated with demographic differences in seat belt use.

### Migraine and Frequency of Being the Driver

In our study, although 70.4% of individuals with migraine generally preferred to be the driver, they drove an average of 4.8 days per week and made 19.1 trips per month. These findings are consistent with previous literature. For instance, DiGuseppi et al.<sup>[27]</sup> reported that participants aged 65–79 years with migraine drove at least once per week; 71% of the sample were female, and the mean driving frequency was 21.4 days per month. Awaki et al.<sup>[2]</sup> reported a lower driving frequency, noting that 73.4% of participants with migraine had driven at least once per week in the preceding month. DiGuseppi et al.<sup>[27]</sup> also found that, after adjusting for potential confounders, individuals with migraine had significantly less driving exposure than those without migraine, driving approximately one fewer day per month and making about nine fewer trips. Although our study did not include a control group, 29.7% of drivers with migraine reported reduced driving frequency, suggesting that migraine may influence driving behavior. Analysis of demographic variables revealed that male sex, older age, smoking and alcohol use, longer driving experience, and lower HIT-6 scores were associated with a greater tendency to drive more frequently.

Notably, a strong negative association was observed between HIT-6 scores and preference for driving. Similarly, a large-scale survey of 5,485 licensed drivers with migraine reported that greater headache severity and frequency were associated with reduced driving frequency or avoidance of driving altogether.<sup>[28]</sup> In another study, approximately one-third of participants reported at least one period during the previous 12 months in which they refrained from driving due to migraine or severe headache. The most commonly cited reasons were safety concerns, pain interfering with driving performance, and driving triggering or exacerbating headaches.<sup>[2]</sup> Sakai et al.<sup>[29]</sup> similarly reported that 13.3% of participants reduced their driving frequency or avoided driving altogether due to migraine symptoms. Studies demonstrating that individuals with vestibular disorders tend to drive less frequently further support this observation.<sup>[30]</sup> In our study, however, contrary to the pattern observed with HIT-6 scores, individuals reporting higher headache intensity were more likely to

choose to drive. This finding may reflect the fact that some patients continue driving despite pain due to social or occupational obligations, or that their awareness of migraine-related driving risks is limited. Consistent with this, Awaki et al.<sup>[2]</sup> reported that 20.1% of drivers with migraine continued to drive at least occasionally despite experiencing severe pain.

### Migraine and Driving Speed

For more than two decades, excessive speed has been implicated in approximately one-third of motor vehicle-related fatalities.<sup>[31]</sup> According to 2023 TÜİK data, the most common driver-related cause (37.03%) of fatal and injury traffic accidents is failure to adjust vehicle speed appropriately to road, weather, and traffic conditions, whereas excessive speed was identified as a direct cause of accidents in 0.88% of cases.<sup>[24]</sup> In our study, 26.3% of individuals with migraine reported driving faster than the general traffic flow. Moreover, accident rates were significantly higher among those who drove faster than traffic. Male sex, smoking, alcohol use, greater driving experience, lower HIT-6 scores, and a lower frequency of headaches while driving were associated with higher driving speeds. These findings indicate that both demographic and clinical factors may influence driving behaviors. Cestac et al.<sup>[32]</sup> examined young drivers' willingness to exceed 110 km/h on a flat road with a 90 km/h speed limit. Only 43% of female drivers and 26% of male drivers reported that they would never exceed this speed, suggesting that male drivers are more likely to engage in speeding behavior than female drivers. The same study reported that male drivers' intention to speed was associated with higher levels of "thrill-seeking" behavior and greater social pressure to exceed speed limits. Additionally, the tendency to speed increased with greater driving experience.<sup>[32]</sup> According to TÜİK (2023) data, alcohol use contributed to 0.69% of fatal and injury-related traffic accidents.<sup>[24]</sup> However, a hospital-based cross-sectional study conducted in the UAE found no significant differences in speeding violations, traffic violations, or alcohol use between individuals with migraine and controls.<sup>[8]</sup> These findings suggest that migraine may not be directly linked to risky driving behaviors; rather, its effects may be indirect and limited to specific subgroups. In our study, 29.3% of drivers reported anxiety about being involved in a crash while driving. This proportion nearly doubled when a headache was present. These findings indicate that headache episodes may negatively influence perceived driving safety. Similarly, a population-based study conducted in Canada by Edmeads et al.<sup>[33]</sup> found that 45% of individuals with migraine or tension-type headache reported anxiety about driving during headache attacks. Collectively, these results suggest that pain-related anxiety among drivers with migraine may influence both driving performance and self-confidence.

### Migraine and Driving Quality

In our study, male sex, smoking, alcohol use, lower HIT-6 scores, and greater driving experience were associated with more favorable self-assessments of driving quality. This suggests that subjective evaluations of driving ability may not

necessarily reflect objective performance. Supporting this interpretation, a small study (N=28) reported that individuals with chronic pain described their driving quality as "normal" despite their condition.<sup>[34]</sup> The literature further indicates that young drivers—particularly males—tend to overestimate their driving abilities and underestimate accident risk, thereby engaging more readily in risky behaviors.<sup>[25,26]</sup> This pattern is consistent with the more favorable self-perception of driving quality reported by male drivers in our study. Additionally, a study by Lesch and Hancock<sup>[35]</sup> found that female drivers exhibited longer braking reaction times than male drivers when exposed to distractions and were more likely to run red lights. In contrast, older drivers reported preferring reduced exposure to distracting stimuli, acknowledging that such distractions can adversely affect driving performance.<sup>[36]</sup> These findings suggest that with increasing age, individuals may develop greater driving awareness and self-regulatory strategies to compensate for limited cognitive resources.

### Limitations

- The cross-sectional design of the study limits the ability to establish causal relationships.
- The absence of a healthy control group prevented direct comparisons between drivers with and without migraine.
- Driving habits were not evaluated in relation to specific migraine attack phases, making it impossible to assess the acute effects of migraine.
- The use of self-reported data may have introduced recall bias.
- Differences among migraine subtypes (e.g., migraine with aura, vestibular migraine, chronic migraine, etc.) were not examined in detail.
- Neurocognitive testing and objective driving simulations were not performed, limiting direct assessment of actual driving performance.

### CONCLUSION

This study is one of the most comprehensive investigations to examine driving behaviors, safety habits, and the multidimensional impact of migraine on driving among individuals with migraine. The findings indicate that migraine significantly influences daily activities, safety behaviors, and individual decision-making processes.

Most individuals with migraine adhered to safety precautions and traffic regulations. Male sex, smoking, alcohol use, lower HIT-6 scores, and longer driving experience were common factors associated with more frequent driving, higher driving speeds, and a greater tendency to perceive oneself as a better driver.

These results underscore the need for healthcare professionals to address not only symptom control but also driving safety and behavioral patterns in the management of migraine, particularly in specific subgroups.

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## ORJİNAL ÇALIŞMA - ÖZ

### Migrenin sürüş güvenliği, alışkanlıkları ve risk algısı üzerindeki etkileri

**AMAÇ:** Bu çalışma, migrenli bireylerin sürüş alışkanlıklarını ve hastaların güvenlik stratejilerine uyumunu değerlendirerek migrenin sürüş üzerindeki çok boyutlu etkilerini ortaya koymayı amaçlamaktadır.

**GEREÇ VE YÖNTEM:** Bu çok merkezli, hastane tabanlı, kesitsel çalışma Mayıs-Temmuz 2024 tarihleri arasında yürütülmüştür. 18-65 yaş aralığında, araç kullanma öyküsü olan migrenli gönüllüler, onamları alındıktan sonra çalışmaya dahil edilmiştir. Hastaların demografik özelliklerini, bireysel sürüş deneyimlerini, sürüş tercihlerini ve alışkanlıklarını değerlendirmek için Sürüş Alışkanlığı Anketi'nden uyarlanan bir form kullanılarak detaylı yüz yüze görüşmeler yapılmıştır. Son olarak, araç kullanmanın hastaların yaşam kalitesi üzerindeki etkisi Baş Ağrısı Etki Testi-6 (HIT-6) kullanılarak değerlendirilmiştir.

**BULGULAR:** Çalışmamızda değerlendirilen 2548 hastanın 1333'ünün araç kullanma deneyimi vardı; sürücülerin ortalama yaşı  $36.7 \pm 9.5$  yılı ve %64.4'ü kadındı. Migrenli hastalar yaklaşık olarak haftanın 4.86 günü araç kullanırken; katılımcıların %64.1'inin 10 yıldan fazla sürüş deneyimi vardı. Hastalar genel olarak güvenlik önlemlerine uyuyorlardı: Katılımcıların %92.2'si her zaman emniyet kemeri takıyordu ve %85.2'si araç kullanmadan önce düzenli olarak dikiz aynalarını kontrol ediyordu. Hastaların %28.8'i her zaman sürücü olmak istiyordu ve %26.3'ü trafik akışının aksine hız sınırının üzerinde araç kullanıyordu. Migrenli sürücülerde ortalama HIT-6 puanı,  $62.2 \pm 7.1$  idi. Sık araç kullanma davranışı, daha yüksek sürüş hızları ve kendilerini daha iyi sürücü olarak algılama eğilimiyle ilişkili ortak faktörler erkek cinsiyet, sigara ve alkol kullanımı, daha uzun süreli araç kullanma deneyimi ve düşük HIT-6 skoru idi.

**SONUÇ:** Bulgularımız, migrenin sürüş sıklığını, hız tercihlerini ve öznel sürüş güvenliğini etkileyerek sürüş davranışlarını şekillendirdiğini ve bunun klinik değerlendirmelerde dikkate alınması gerektiğini göstermektedir.

**Anahtar sözcükler:** Dikiz aynası; emniyet kemeri; migren; sürüş hızı; sürüş kalitesi; sürüş tercihleri.

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## MİGREN HASTALARINDA SÜRÜŞ ALIŞKANLIKLARININ VE PROBLEMLERİNİN DEĞERLENDİRİLMESİ

Araştırmanın amacı, migren hastalarının sürüş ile ilgili deneyimlerini, tercihlerini, sürüş sırasında yaşadıkları problemleri, baş ağrıları ile başa çıkma metodlarını açığa çıkarmak ve kaza sırasındakimigren atak durumlarına dair bilgi toplamaktır.

Araştırmaya katılmayı kabul ederseniz,sizden anket sorularına dikkatlice yanıt vermeniz istenmektedir. Yaklaşık olarak 15-20 dakika sürmesi beklenen bu ankette sizlere migren baş ağrısınınözellikleri, sürüş deneyimleriniz ve tercihleriniz, sürüş performansınızı etkileyebilecek faktörler, sürüş esnasında baş ağrınız ile başa çıkma metodlarınız, kaza sıklığınız ve kaza anındaki baş ağrısı durumunuz gibi boyutları kapsayan sorular yöneltilecektir. Vereceğiniz yanıtlar sizin baş ağrınızın yaşamınızdaki etkisini daha iyi anlamamızı ve sizlere daha etkin çözümler üretmemizi sağlayacaktır.

Araştırmaya katılımınız tamamen gönüllülük temelinde olacaktır. Ankette sizden kimliğinizi ifşa edecek veya çalıştığınız kurum, bölüm, birim gibi belirleyici hiçbir bilgiistenmemektedir. Cevaplarınız tamamıyla gizli tutulacak, sadece araştırmacılar tarafından değerlendirilecektir. Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayınlarda kullanılacaktır. Sağladığınız veriler gönüllü katılım formlarında toplanan kimlik bilgileri ile eşleştirilmeyecektir ve sigorta şirketi gibi diğer kurumlara verilmeyecektir.

Çalışma, genel olarak kişisel rahatsızlık verecek sorular içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz cevaplamayı yarıda bırakmakta serbestsiniz. Böyle bir durumda çalışmayı uygulayan kişiye, çalışmadan çıkmak istediğinizi söylemeniz yeterli olacaktır.

Çalışmaya ve dolayısıyla migrenlilerin sürüş sırasında yaşadıklarını objektif olarak saptamak ve bu bilinmeyen yükü ortaya koymak adına verdiğiniz destek için teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Acıbadem Üniversitesi öğretim üyelerinden Prof. Dr. Pınar Yalınay Dikmen (E-posta: pinarya@hotmail.com) ya da Gaziantep Şehir Hastanesi SUAM Nöroloji Anabilim Dalı'ndan Uzm. Dr. Hamit GENÇ (E-posta:hgenc8987@gmail.com) ile iletişim kurabilirsiniz.

- Çalışma ile ilgili bilgileri okudum, anladım. Çalışmaya katılmaya **onay veriyorum.**
- Çalışma ile ilgili bilgileri okudum, anladım. Çalışmaya katılmaya **onay vermiyorum.**

Hasta Adı-Soyadı	:	Hekimin Adı-Soyadı	:
İmza	:	İmza	:
Tarih	:	Tarih	:

## **1.KISIM**

**Bu kısım arařtırmacı hekim tarafından doldurulacaktır.**

**\* Zorunlu soruyu belirtir.**

1. E-posta \*

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2. alıřma merkezinizin kodunu belirtiniz. \*

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3. Hasta kodunu belirtiniz. \*

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4. Yař \*

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5. Cinsiyet \*

**Yalnızca bir řıkkı iřaretleyin.**

Kadın  Erkek  Dięer: \_\_\_\_\_

6. Meslek \*

**Yalnızca bir řıkkı iřaretleyin.**

řoför  Kaptan  Pilot  Vin operatörü  Dięer: \_\_\_\_\_

7. Yaklařık aylık gelir durumunuz nedir? \*

---

8. Hastanın primer başvuru sebebi baş ağrısı mı? \*

**Yalnızca bir şıkkı işaretleyin.**

Evet  Hayır

9. Tanı \*

**Uygun olanların tümünü işaretleyin.**

- |  |  |
|--|--|
| <input type="checkbox"/> Aurasız migren          | <input type="checkbox"/> Vestibular migren               |
| <input type="checkbox"/> Auralı migren           | <input type="checkbox"/> İlaç kötüye kullanım baş ağrısı |
| <input type="checkbox"/> Kronik migren           | <input type="checkbox"/> Diğer: _____                    |
| <input type="checkbox"/> Migren komplikasyonları |  |

10. Auralı migren hastanızın aura tipini belirtiniz. \*

**Uygun olanların tümünü işaretleyin.**

- |  |  |
|--|--|
| <input type="checkbox"/> Aura yok              | <input type="checkbox"/> Beyin sapı (Vertiginöz) |
| <input type="checkbox"/> Görsel                | <input type="checkbox"/> Retinal                 |
| <input type="checkbox"/> Duysal                | <input type="checkbox"/> Motor                   |
| <input type="checkbox"/> Konuşma ve/veya lisan |  |

11. Migren tanısı aldığınızda kaç yaşındaydınız? \*

\_\_\_\_\_

12. Son 3 aydır, ayda ortalama kaç kez baş ağrısı yaşadınız? (Gün) \*

\_\_\_\_\_

13. Baş ağrılarınızın şiddetine 10 üzerinden kaç puan verirsiniz? \*

**Yalnızca bir şıkkı işaretleyin.**

1 2 3 4 5 6 7 8 9 10

\_\_\_\_\_

\_\_\_\_\_

14. Bař ađrınıza eřlik eden semptomları belirtiniz? \*

**Uygun olanların tümünü iřaretleyin.**

- |  |  |
|--|--|
| <input type="checkbox"/> Bulantı Kusma | <input type="checkbox"/> Allodini            |
| <input type="checkbox"/> Fotofobi      | <input type="checkbox"/> Otonomik bulgular   |
| <input type="checkbox"/> Fonofobi      | <input type="checkbox"/> Hareket duyarlılıđı |
| <input type="checkbox"/> Osmofobi      | <input type="checkbox"/> Boyun ađrısı        |
| <input type="checkbox"/> Bař dönmesi   |  |

15. Bař ađrınızın yönünü belirtiniz? \*

**Yalnızca bir şıkı iřaretleyin.**

- |                                       |  |
|---------------------------------------|--|
| <input type="radio"/> Hep tek taraflı | <input type="radio"/> Bazen tek, bazen iki taraflı         |
| <input type="radio"/> Hep iki taraflı | <input type="radio"/> Hep tek taraflı fakat yön deđiřtiren |

16. Bař ađrınızın tipini belirtiniz? \*

**Uygun olanların tümünü iřaretleyin.**

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Sıkıřtırıcı/baskı     | <input type="checkbox"/> Deđiřken     |
| <input type="checkbox"/> Zonklayıcı/pulsatil   | <input type="checkbox"/> Diđer: _____ |
| <input type="checkbox"/> Bıçak saplanır tarzda |                                       |

17. Migren atađını kontrol altına almak için kullandıđınız ilaçları belirtiniz? \*

**Uygun olanların tümünü iřaretleyin.**

- |  |
|--|
| <input type="checkbox"/> İlaç almıyorum  |
| <input type="checkbox"/> Parasetamol   |
| <input type="checkbox"/> Ađrı kesiciler ve anti-inflamatuar ilaçlar (NSAI)       |
| <input type="checkbox"/> Triptanlar  |
| <input type="checkbox"/> Ergot alkaloidleri                                      |
| <input type="checkbox"/> Asetilsalisilik asit-Parasetamol-Kafein kombinasyonları |
| <input type="checkbox"/> Diđer: _____  |

18. Varsa son 3 aydır aldığınız profilaksi tedavisini/tedavilerini belirtiniz? \*

**Uygun olanların tümünü işaretleyin.**

- Almıyorum
- Beta blokörler
- Trisiklik antidepresanlar
- SNRI
- Valproik asit
- Topiramet
- Flunarizin
- GON ve diğer periferel blokajlar
- Botulinum toksin enjeksiyonu
- CGRP antagonistleri
- Diğer: \_\_\_\_\_

19. Kronik hastalığınız varsa belirtiniz? \*

**Uygun olanların tümünü işaretleyin.**

- Kronik hastalığım yoktur
- Hipertansiyon
- Diyabetes mellitus
- Tiroid bozukluğu
- Romatizma
- Kas hastalığı
- Ritm bozukluğu
- Kalp hastalığı
- İnme
- Diğer: \_\_\_\_\_

20. Daha önce bilinen bir psikiyatrik hastalığınız var mı? \*

**Uygun olanların tümünü işaretleyin.**

- Hayır
- Depresyon
- Psikoz
- Bipolar Bozukluk
- Anksiyete
- Diğer: \_\_\_\_\_

21. Uyku bozukluđunuz varsa belirtiniz. \*

**Uygun olanların tümünü işaretleyin.**

- Yok
- Uykuya dalma güçlüğü
- Sık uyanma
- Gün içi artmış uykululuk
- Uyku apnesi
- Huzursuz bacaklar sendromu
- Yorgun uyanma
- Diğer: \_\_\_\_\_

22. Görme probleminiz varsa belirtiniz. \*

**Uygun olanların tümünü işaretleyin.**

- Yok
- Uzağı görememe (miyop)
- Yakını görememe (hipermetrop)
- Astigmatizm
- Göz tansiyonu (Glokom)
- Şaşılık
- Çift görme
- Diğer: \_\_\_\_\_

23. Aşağıdaki alışkanlıklardan hangisi sizde mevcuttur? \*

**Uygun olanların tümünü işaretleyin.**

- Sigara
- Alkol
- Hiçbiri
- Diğer: \_\_\_\_\_

## **2.KISIM**

**Bu kısmı hasta dolduracak, hekim tarafından kontrolü sağlanacak.**

24. Migren atağı öncesi aşağıdaki semptomlardan hangilerini yaşarsınız? **(Uygun olanların tümünü işaretleyin.)**

- Sinirlilik
- Depresif ruh hali veya ruh halindeki değişiklikler
- Esneme
- Tükenmişlik
- Uyuma zorluğu
- İdrar yapma ihtiyacının artması
- Yemek isteği
- Mide bulantısı
- Işığa veya sese duyarlılık
- Odaklanmada zorluk
- Konuşma veya okuma zorluğu
- Boyun ağrısı veya kas sertliği
- Hiperaktivite
- Kabızlık veya ishal
- Şişkinlik
- Hiçbiri
- Diğer: \_\_\_\_\_

25. Migren atağı sonrası aşağıdaki semptomlardan hangilerini yaşarsınız? \* **(Uygun olanların tümünü işaretleyin.)**

- Yorgun, tükenmiş veya huysuz hissetmek
- Alışılmadık derecede yenilenmiş veya mutlu hissetmek
- Kas ağrısı veya zayıflığı
- Yiyecek isteği veya iştahsızlık
- Hiçbiri
- Diğer: \_\_\_\_\_

26. Yolculuk yaparken, aracı siz kullanmadığınız zaman taşıt tutması yaşıyor musunuz? \*

**Yalnızca bir şıkkı işaretleyin.**

- Hiç yaşamıyorum  
 Bazen yaşıyorum  
 Sıklıkla yaşıyorum  
 Her zaman yaşıyorum

27. Çocukluk döneminde taşıt tutmanız var mıydı? \* (Yalnızca bir şıkkı işaretleyin.)

- Evet  Hayır

28. Araç kullanıyor musunuz? \* (Yalnızca bir şıkkı işaretleyin.)

- Evet  Hayır  Bıraktım

29. Ehliyetiniz var mı? \* (Yalnızca bir şıkkı işaretleyin.)

- Evet  Hayır

**NOT: Hiç araç kullanmıyorsanız, lütfen 54. Sorudan devam ediniz. 54.soruda sadece soldaki "Aracı siz KULLANMIYORKEN" kısmını doldurunuz. Sonrasında devam eden soruları yanıtlayınız.**

30. Genelde hangi aracı kullanıyorsunuz? (Uygun olanların tümünü işaretleyin.)

- |                                      |                                 |                                      |
|--------------------------------------|---------------------------------|--------------------------------------|
| <input type="checkbox"/> Otomobil    | <input type="checkbox"/> SUV    | <input type="checkbox"/> Motorsiklet |
| <input type="checkbox"/> Bisiklet    | <input type="checkbox"/> Martı  | <input type="checkbox"/> Minibüs     |
| <input type="checkbox"/> Transit     | <input type="checkbox"/> Otobüs | <input type="checkbox"/> Tren        |
| <input type="checkbox"/> Uçak        | <input type="checkbox"/> Gemi   | <input type="checkbox"/> Tekne       |
| <input type="checkbox"/> Diğer:..... |                                 |                                      |

31. Kaç yaşından beri aktif araç kullanıyorsunuz?

\_\_\_\_\_

32. Haftada ortalama kaç gün araç kullanıyorsunuz? \* (Yalnızca bir şıkkı işaretleyin.)

1 2 3 4 5 6 Haftanın her günü araç kullanıyorum

- 

33. Aracı siz kullanırken taşıt tutması yaşıyor musunuz? (Yalnızca bir şıkkı işaretleyin.)

- Hiç yaşamıyorum  
 Bazen yaşıyorum  
 Sıklıkla yaşıyorum  
 Her zaman yaşıyorum

34. Araba sürerken gözlük veya kontak lens takıyor musunuz? **\*(Yalnızca bir şıkkı işaretleyin.)**

- Evet  Hayır

35. Sürerken emniyet kemeri takar mısınız? Şöyle diyebilir misiniz? **\*(Yalnızca bir şıkkı işaretleyin.)**

- Her zaman  Bazen  Asla

36. Sürüş öncesi aynaları kontrol eder misiniz? **\*(Yalnızca bir şıkkı işaretleyin.)**

- Her zaman  Bazen  Asla

37. Arabayla dışarı çıktığınızda ne sıklıkla siz şoför olursunuz? **\*(Yalnızca bir şıkkı işaretleyin.)**

- Her zaman  Sıklıkla  Bazen  Asla

38. Genellikle, yakın mekanlarda dolaşmayı nasıl tercih edersiniz? **\*(Yalnızca bir şıkkı işaretleyin.)**

- Toplu taşıma veya taksi kullanırsınız.  
 Sizi birisi arabayla gezdirir.  
 Bizzat kendiniz araba sürersiniz

39. Genel trafik akışına göre genellikle ne kadar hızlı sürüyorsunuz? Şöyle diyebilir misiniz? **\***

**(Yalnızca bir şıkkı işaretleyin.)**

- Çok daha yavaş  
 Biraz daha yavaş  
 Yaklaşık aynı  
 Biraz daha hızlı  
 Çok daha hızlı

40. Araba sürüş kalitenizi nasıl değerlendirirsiniz? Şöyle diyebilir misiniz? **\*(Yalnızca bir şıkkı işaretleyin.)**

- Kötü  Zayıf  Ortalama  İyi  Mükemmel

41. Kendi aracınızla gitmek istemediğiniz bir yere gitmeniz gerektiğinde ne yaparsınız? **\***

**(Yalnızca bir şıkkı işaretleyin.)**

- Bir arkadaş veya akrabaya araba sürmesi için rica ederim.  
 Taksi çağırır veya toplu taşımaya/otobüse binerim.  
 Nasıl hissettiğime bakmaksızın kendim araba sürerim.  
 Planlarımı iptal eder veya erteleyerek kalırım.  
 Diğer: \_\_\_\_\_

42. Araç kullanırken baş ağrısı yaşadınız mı? **\*(Yalnızca bir şıkkı işaretleyin.)**

Evet  Hayır

43. Son 1 ayda kaç kez araç kullandınız? \* \_\_\_\_\_

44. Son 1 ayda araç kullanırken kaç kez baş ağrısı yaşadınız? \* \_\_\_\_\_

45. Son 1 ayda, taşıt kullanırken ortaya çıkan baş ağrınız ortalama kaç saat sürdü? \* \_\_\_\_\_

46. Taşıt kullanırken başlayan baş ağrınızın şiddetine 10 üzerinden kaç puan verirsiniz? **\*(Yalnızca bir şıkkı işaretleyin.)**

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

47. Sürüş esnasında migren atağı yaşadığınızda nasıl başa çıkmaya çalışırsınız? **\*(Uygun olanların tümünü işaretleyin.)**

- Bir şey yapmadım, aynı şekilde sürüşe devam ettim.
- Ağrı kesici/atak ilacı kullandım.
- Sıvı tükettim.
- Güneş gözlüğü kullandım.
- Araç içi ön cam yerleşimli güneş siperliği kullandım.
- Sürüşe ara verdim ve atağımın geçmesini bekledim.
- Sürüş hızımı düşürdüm.
- Müzik sesini kapattım.
- Aracın camlarını açarak havalanmasını sağladım.
- Araç farlarının daha fazla etkilemesi nedeniyle gece sürüşünden kaçındım.
- Yanımda başka sürücü olması halinde sürüşe onun devam etmesini istedim.
- Trafiğin kalabalık olduğu yerlerde araç kullanmamaya çalıştım.
- Arka koltuktan ön koltuğa geçtim.
- Diğer: \_\_\_\_\_

48. Sürüş sırasında baş ağrınız varsa endişe/kaygı yaşıyor musunuz veya artıyor mu? **\*(Yalnızca bir şıkkı işaretleyin.)**

Evet  Hayır





56. Geçen yıl sürücü olarak karıştığınız kaç kaza oldu? Lütfen kendi kusurunuz olsun olmasın, tüm kazaların sayısını söyleyin? \*

---

57. Bu kazaların kaçında kaza anında migren atağı yaşıyordunuz? \*

---

58. Geçen yıl trafik cezası (park cezası hariç) aldınız mı ve bu durumda sizin düşünceniz ne olursa olsun kusurlu bulundunuz mu? **(Yalnızca bir şıkkı işaretleyin.)**

Evet

Hayır

### **3.KISIM**

#### **Baş Ağrısı Etki Ölçeği (HIT-6)**

59. Baş ağrılarınız olduğunda, ağrınız ne sıklıkla şiddetlidir? \* **(Yalnızca bir şıkkı işaretleyin.)**

Asla

Nadiren

Bazen

Sıklıkla

Her zaman

60. Baş ağrıları ev işi, çalışma, okul veya sosyal aktiviteleri içeren her zamanki günlük aktivitelerinizi yapabilmenizi ne sıklıkta kısıtlar? \* **(Yalnızca bir şıkkı işaretleyin.)**

Asla

Nadiren

Bazen

Sıklıkla

Her zaman

61. Baş ağrınız olduğunda, ne sıklıkla yatıp uzanmak istersiniz? \* **(Yalnızca bir şıkkı işaretleyin.)**

Asla

Nadiren

Bazen

Sıklıkla

Her zaman

62. Geçtiğimiz 4 haftada, ne sıklıkla baş ağrılarınız nedeniyle iş veya günlük etkinliklerinizi yapmak için çok yorgun hissettiniz? \* **(Yalnızca bir şıkkı işaretleyin.)**

Asla

Nadiren

Bazen

Sıklıkla

Her zaman

63. Geçtiğimiz 4 haftada, ne sıklıkla baş ağrılarınız nedeniyle bıkkın veya gergin hissettiniz? \* **(Yalnızca bir şıkkı işaretleyin.)**

Asla

Nadiren

Bazen

Sıklıkla

Her zaman

64. Geçtiğimiz 4 haftada, ne sıklıkla baş ağrıları iş veya günlük aktivitelere konsantre olabilmenizi kısıtladı? \* **(Yalnızca bir şıkkı işaretleyin.)**

Asla

Nadiren

Bazen

Sıklıkla

Her zaman