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A Cross-Sectional Satisfaction Survey of 845 Traffic Accident Patients Treated with Korean Medicine



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ABSTRACT

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Keywords:

Korean medicine treatment, intention to reuse, satisfaction, traffic accident

Background: We conducted a cross-sectional study to analyze the pain characteristics and satisfaction scores in traffic accident (TA) patients seeking Korean medicine treatment.

Methods: A survey was conducted in 845 outpatients who visited 10 Korean medicine institutions due to TA-associated symptoms from February 25th, 2016 to March 9th, 2016. The questionnaire included information about patient sociodemographic characteristics, accident circumstance details, pain levels, treatment methods, satisfaction and pre-existing musculoskeletal disorders. All statistical analyses were performed using STATA 14.0.

Results: A total 754 of the 845 respondents had experienced acute pain of onset within 1-2 days. Pain in the neck or low back was most common, and low back pain (LBP) was more prevalent in pedestrian-vehicle accident cases. Patients showed highest satisfaction with pharmacopuncture treatment, followed by acupuncture and Chuna manual therapy. Although treatments were not completed at the time of the survey, the majority of patients were satisfied with the Korean medicine treatments they received and indicated their intent to reuse this treatment in the future. The degree of pain reduction after treatment was a factor that influenced patient satisfaction with and intention to reuse Korean medicine.

Conclusion: This study determined the characteristics and status of TA patients using Korean medicine and suggests the need for further more inclusive studies.

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Introduction

Traffic accidents (TAs) are one of the leading causes of death and disability [1], and many musculoskeletal disorders are caused by external injuries sustained from TA [2]. Low back pain (LBP) and neck pain are common symptoms after TA, and the median of recovery from back pain was reported to be 505 days [3].

It is estimated that about 1.3 million people are killed and 50 million people are seriously injured every year in road accidents worldwide. The Korean automobile industry has been growing rapidly since 1990, and the number of registered vehicles has increased by 3% every year, which resulted in more than four times the number of vehicles in 2016 compared to 1990. In recent years, the number of TAs, deaths and casualties has shown a declining trend, but the mortality rate is still higher than the average of OECD member countries [4].

According to the Korean Road Traffic Authority's 2017 report of TA occurrence, the number of TAs was 220,917, the number of deaths was 4,292, and the number of injured people was 331,720 in 2016. Despite a decrease in the number of TAs, deaths, and injuries in 2016 by 4.8%, 7.1%, and 5.3% compared to the previous year, respectively, it was shown that the average number of TAs has exceeded 200,000 cases/year, and the average number of injuries maintained a high level of over 300,000 cases/year for the past 10 years [5].

In East Asian countries such as South Korea, various complementary and alternative medicine (CAM) therapies including acupuncture and manipulation are widely used as treatments for musculoskeletal disorders [6]. Particularly in South Korea, which employs a dual medical system that incorporates both traditional Korean and conventional medicine, CAM therapies are commonly used for treatment of TA-associated

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symptoms. In Korean medicine, symptoms caused by TA injuries are considered to be a result of coagulation of Qi and Blood. Therefore, various treatment methods such as herbal medicine, acupuncture, Chuna manual therapy, cupping therapy, and Korean medicine physiotherapy are used to improve circulation of Qi and Blood, and the efficacy of treatment has been confirmed in several studies [7].

As a 2009 survey of Korean medical care for TA patients with automobile insurance shows, most TA injuries are minor, and in many cases, patients show no abnormal findings on diagnostic examination in conventional medicine [8]. However, if treatment options are limited to drug and physical therapy merely due to the fact that there were no abnormal test findings in conventional medicine, this may involve various risks, and patient satisfaction with treatment may also be limited [9]. Since physical injuries caused by TAs can be accompanied by various psychological and mental problems, consistent and stable management of TA patients is necessary. As a result, the number of TA patients who visit Korean medicine institutions has gradually been increasing, and satisfaction rates have been reported to be high [10].

Also, according to data released by the Korean Ministry of Health and Welfare, the number of patients filing for automobile insurance increased by 22.99% from 582,500 in 2015 to 716,422 in 2016, and medical expenses increased by 28.56% from 357,648,090 Korean won to 459,782,202,000 Korean won. This implies that the total number of patients reimbursed by automobile insurance increased by 2.17% and the cost of medical treatments increased by 6.61%, indicating that more patients are choosing Korean medicine service each year [11].

Previous studies have reported an increasing number of TA patients seeking Korean medicine treatment and high levels of patient satisfaction regarding medical services provided by Korean medicine institutions [12, 13]. As a nationwide survey investigating satisfaction with medical services of TA patients visiting Korean medicine institutions, this study is a large-scale, up-to-date current report on the status of TAs and analysis of the demographic and pain profile characteristics of TA patients visiting Korean medicine institutions.

Materials and Methods

Subjects

A survey was conducted in outpatients who visited 10 Korean medicine institutions due to TA-associated symptoms from February 25th, 2016 to March 9th, 2016, located in locational regions 1-10 in Korea. Each year, 900,000 spine and joint patients receive treatment at these institutions using acupuncture, herbal medicine, and Chuna manual therapy for non-surgical treatment of musculoskeletal disorders. Conventional medicine provides assistance in terms of diagnosis and complementary treatment, using such treatments as analgesics and physiotherapy [14].

Patients were asked to participate in the survey following treatment, and those who agreed to participate filled out the questionnaire on-site. The survey questionnaires were distributed equally to recruit 100 participants at each location, and a total of 859 questionnaires were collected.

Data collection

The questionnaire was designed with 4 components: Part 1 (basic patient sociodemographic information and TA circumstance details), Part 2 (initial post-TA symptoms), Part 3 (treatments and patient satisfaction), and Part 4 (information on pre-existing

musculoskeletal disorders). Individual items in the questionnaire were based on previous comparable survey studies, and tailored to better serve the objective of the present study. Each questionnaire was completed anonymously and returned in person by the respondents. The translated English version of the questionnaire will be made available through contact and request to the corresponding author.

Statistical analysis

Changes in pain were calculated by subtracting the post-treatment pain NRS from the pre-treatment pain NRS. First time visits after the accident were categorized as within 1 day, 2 days, 1 week, 2 weeks and more than 2 weeks.

Statistical analysis was performed to examine differences in the demographic characteristics, history, pain, and treatment status of patients. Continuous variables are presented as mean \pm standard deviation (SD), and nominal variables are presented as frequency and percentage (%). For convenience in analysis, satisfaction items which were answered using a 5-point Likert scale of "very satisfied," "satisfied," "neutral," "dissatisfied," and "very dissatisfied," these items were converted into continuous variables in the form of 5, 4, 3, 2, and 1.

Patient satisfaction of Korean medicine service use and intention to reuse Korean medicine services were compared between groups using Student's t-test and analysis of variance (ANOVA). Statistical tests were performed with significance level set as $p < 0.05$.

All statistical analyses were performed using STATA 14.0 (StataCorp, College Station, Texas, USA).

Ethics statement

This study was approved by the Institutional Review Board of Jaseng Hospital of Korean Medicine (JASENG 2018-02-001) and adhered to research ethics. As this study did not collect personally identifiable information, the authors submitted a request for consent form exemption and received IRB approval with a waiver of documentation of informed consent.

Results

Basic Patient Sociodemographic Information

Of the 859 questionnaires returned, 845 questionnaires were subject to analysis following exclusion of 14 respondents who failed to provide information on numerical rating scale (NRS) of initial pain ($n=3$) or post-treatment pain NRS ($n=11$). Among the 845 respondents, 422 (49.9%) were male, and 424 (50.1%) were female. Regarding age, 335 (39.6%) respondents were aged 30-39 years, 225 (26.6%) were aged 40-49, 118 were aged 50-59 (13.9%), and 107 were aged 20-29 (12.9%). Overall, the number of survey respondents from each survey study site was similar, and each accounted for 8-11.2% of total respondents (Table 1).

Circumstance Details of the Accident and Initial Symptoms

Regarding the details of TA circumstances, 65 cases were pedestrian-vehicle accidents, which was equivalent to 7.7% of total cases. Of the total 758 car accidents, rear-impact collisions were the most frequent impact direction at 54.8% (463 cases), followed by side impact at 23.3% (197 cases), and frontal impact at 9.3% (79 cases). Regarding driving conditions, the largest proportion (40.5%) of accident-involved vehicles (343 cases) were stationary at the time of the accident, followed by speeds lower than 30 km/h, lower than 50 km/h, and speeds of ≥ 50 km/h (Table 2). There

Table 1. Satisfaction of and Intention to Reuse Korean Medicine by Demographic Characteristics.

Factor	N (%)	Satisfaction (n = 844)	Intention to reuse (n = 842)
		Mean ± SD	Mean ± SD
Sex			
Male	422 (49.9)	4.11 ± 0.70	4.23 ± 0.66
Female	423 (50.1)	4.04 ± 0.73	4.22 ± .062
	845 (100)	<i>p</i> = 0.1468	<i>p</i> = 0.7295
Age (y)			
10≤, <20	3 (0.4)	4 ± 0	3.67 ± 0.58
20≤, <30	107 (12.7)	4.16 ± 0.69	4.23 ± 0.64
30≤, <40	335 (39.6)	4.13 ± 0.69	4.28 ± 0.63
40≤, <50	225 (26.6)	4.04 ± 0.73	4.24 ± 0.6
50≤, <60	118 (14.0)	4 ± 0.81	4.19 ± 0.58
60≤	57 (6.7)	3.91 ± 0.67	3.93 ± 0.88
	845 (100)	<i>p</i> = 0.1473	<i>p</i> = 0.0040*
Location			
1	88 (10.4)	4.23 ± 0.67	4.42 ± 0.58
2	83 (9.8)	3.88 ± 0.74	4.17 ± 0.62
3	95 (11.2)	4.15 ± 0.7	4.27 ± 0.72
4	86 (10.2)	4.16 ± 0.67	4.22 ± 0.62
5	91 (10.8)	4.09 ± 0.68	4.13 ± 0.7
6	89 (10.5)	4.16 ± 0.56	4.2 ± 0.55
7	86 (10.2)	4.12 ± 0.83	4.37 ± 0.63
8	68 (8.0)	4.04 ± 0.74	4.24 ± 0.63
9	73 (8.6)	4.08 ± 0.73	4.26 ± 0.6
10	86 (10.2)	3.83 ± 0.75	3.97 ± 0.64
	845 (100)	<i>p</i> = 0.0033*	<i>p</i> = 0.0004*

* Statistically significant (*p* < 0.05). Statistical analyses were performed using Student's t-test or analysis of variance (ANOVA).

Table 2. Satisfaction of and Intention to Reuse Korean Medicine by Traffic Accident Circumstance Details.

Factor	N (%)	Satisfaction (n = 844)	Intention to reuse (n = 842)
		Mean ± SD	Mean ± SD
In car	758 (89.7)	4.07 ± 0.72	4.23 ± 0.65
Pedestrian	65 (7.7)	4.11 ± 0.59	4.23 ± 0.55
Other	22 (2.6)	4.05 ± 0.79	4.05 ± 0.79
Total	845 (100)	<i>p</i> = 0.9169	<i>p</i> = 0.4117

* Statistically significant (*p* < 0.05). Statistical analyses were performed using analysis of variance (ANOVA).

was no significant difference between groups in satisfaction of and intention to reuse Korean medicine.

The results showed that 89% of total respondents had an onset

Table 3. Satisfaction of and Intention to Reuse Korean Medicine by Pain Onset and First Time Visit.

Factor	N (%)	Satisfaction (n = 844)	Intention to reuse (n = 842)
		Mean ± SD	Mean ± SD
Onset of pain			
≤ 1 day	425 (50.3)	4.12 ± 0.67	4.23 ± 0.6
≤ 2 days	328 (38.8)	4.05 ± 0.69	4.22 ± 0.66
≤ 1 week	52 (6.2)	3.96 ± 0.88	4.17 ± 0.81
≤ 2 weeks	22 (2.6)	4.05 ± 1.17	4.45 ± 0.6
> 2 weeks	16 (1.9)	3.75 ± 0.77	4.06 ± 0.68
Non-response			
Total	845 (100)	<i>p</i> = 0.1535	<i>p</i> = 0.3780
First visit			
≤ 1 day	231 (27.3)	4.06 ± 0.68	4.19 ± 0.67
≤ 2 days	355 (42.0)	4.12 ± 0.71	4.27 ± 0.62
≤ 1 week	140 (16.6)	4.06 ± 0.72	4.19 ± 0.69
≤ 2 weeks	62 (7.3)	4 ± 0.83	4.16 ± 0.58
> 2 weeks	57 (6.7)	3.98 ± 0.75	4.27 ± 0.59
Total	845 (100)	<i>p</i> = 0.5858	<i>p</i> = 0.5177

* Statistically significant (*p* < 0.05). Statistical analyses were performed using Student's t-test or analysis of variance (ANOVA).

Table 4. Region of Pain by Traffic Accident Type.

Region of pain	Total	Frontal impact	Rear impact	Side impact	Pedestrian
	N (%)	N (%)	N (%)	N (%)	N (%)
Neck	653 (77.2)	71 (89.9)	392 (84.7)	152 (76.8)	39 (60)
Low back	639 (75.5)	59 (74.7)	390 (84.2)	142 (71.7)	49 (75.4)
Shoulder	390 (46.1)	45 (57)	215 (46.4)	110 (55.6)	27 (41.5)
Knee	138 (16.3)	13 (16.5)	63 (13.6)	41 (20.7)	29 (44.6)
Other	148 (17.5)	16 (20.3)	64 (13.8)	33 (16.7)	21 (32.3)
		79 (100)	463 (100)	197 (100)	65 (100)

of pain relatively early, with onset of symptoms within 1-2 days. Also, 69.3 percent of respondents visited the hospital relatively early within this 2-day period, with 231 (27.3%) and 355 (42.0%) respondents visiting the hospital on the day of the accident or the next day, respectively (Table 3). Of the total 260 patients who were asked why they delayed visiting the hospital and visited after ≥48 hours had lapsed since the accident, 115 replied that they were too busy, 57 were visiting other hospitals, and 48 responded that they had no pain or the pain was tolerable. There was no significant difference between groups in satisfaction of and intention to reuse Korean medicine.

Neck pain was more prevalent than LBP in pedestrian accident patients (Table 4).

Treatments and patient satisfaction

The treatment details were broken down and reordered in the order of highest to lowest frequency: 668 received pharmacopuncture (79.1%), 653 received acupuncture (77.3%), 593 received Chuna manual therapy (70.2%), 494 received herbal medicine (58.5%), and 165 received Do-in conduction exercises (19.5%). The survey also assessed satisfaction with regard to specific treatments. Respondents were shown to be most satisfied with pharmacopuncture (79.1%), followed by acupuncture (77.3%), Chuna manual therapy (70.2%), herbal medicine (58.5%), and Do-in conduction exercises (19.5%) (Table 5).

For satisfaction levels and intention to reuse Korean medicine, answers of 'satisfied' with Korean medicine treatment and 'agreed' to reuse Korean medicine were of highest frequency. Changes in pain were calculated by subtracting the post-treatment pain NRS from the pre-treatment pain NRS and were shown to influence both satisfaction and intention to reuse Korean medicine (Table 6).

Past history of musculoskeletal disorders

In response to the question of presence of pre-existing musculoskeletal disorders before the accident, 592 (70.1%) replied "yes" and 253 (29.9%) replied "no". The region of pain was low back ($n=165$), neck ($n=75$), and knee ($n=25$), in descending order, and 159 responded that they had been treated at a medical institution. There was no significant difference according to past history of musculoskeletal disorders in both satisfaction of and intention to

Table 7. Past History of Musculoskeletal Disorder Before the Traffic Accident.

Past history of musculoskeletal disorder	Satisfaction ($n = 844$)	Intention to reuse ($n = 842$)	
		Mean \pm SD	P
No	592 (70.1)	4.10 \pm 0.72	0.2007
Yes	253 (29.9)	4.03 \pm 0.69	0.8986

reuse Korean medicine (Table 7).

Discussion

A more systematic and multidisciplinary approach to TA treatment is called for to increase treatment effectiveness and satisfaction. In an effort to answer this demand, this survey was conducted in a total of 845 TA patients who visited Korean medicine hospitals in 10 regional locations from February 25th, 2016 to March 9th, 2016. The characteristics of TA patients were analyzed by factors such as sex, age, location of pain, time of visit, treatment duration, and satisfaction with treatment.

The participants in the present study were balanced in terms of sex, with 422 males (49.9%) and 423 females (50.1%). Regarding age, the majority of participants were in their 30s and 40s, with 335 patients (39.6%) in their 30s and 225 patients (26.6%) in their 40s.

A total of 425 (50.2%) patients experienced pain within a day of the TA and 329 (38.9%) within two days after the TA, while 92 cases (11.9%) indicated onset of pain three or more days after the accident. These results suggest that mostly acute pain cases are associated with TAs.

The distribution of pain following TA was as follows: 653 (77.2%) had neck pain, 639 (75.5%) low back pain, and 390 (46.1%) shoulder pain. The findings of this study also confirm that TAs are mainly caused by acceleration or deceleration, and that injuries manifest in the neck and low back due to the seated position within the vehicle. In addition, regarding pain distribution by accident circumstance, pain in the neck or back was most frequent in 70-80% of patients in front, side, and rear collisions, but back pain was more prevalent in pedestrian-vehicle accidents ($n=65$). It may be inferred that whiplash-associated injury of the neck is more common in driver- and passenger-related accidents.

Patients were treated with a range of Korean medicine treatments, including acupuncture ($n=654$; 77.3%), Chuna manual therapy ($n=593$; 70.1%), pharmacopuncture ($n=668$; 79%), Do-in conduction exercises ($n=165$; 19.5%), and herbal medicine ($n=494$; 58.4%), and among these treatments, highest satisfaction rates were indicated for pharmacopuncture ($n=533$).

Table 5. Types of Korean Medicine Treatment and Satisfaction Ranking.

Treatment type	Number of treated patients	Most satisfactory treatment
	N (%)	Ranking
Acupuncture	653 (77.3)	2
Chuna manual therapy	593 (70.2)	3
Pharmacopuncture	668 (79.1)	1
Do-in conduction exercise	165 (19.5)	5
Herbal medicine	494 (58.5)	4
Non-response	3 (0.4)	-

* Multiple choices were allowed for 'most satisfactory treatment.'

Table 6. Satisfaction of and Intention to Reuse Korean Medicine by Change in Pain.

Satisfaction	N (%)	Change in pain (mean \pm S.D)	Intention to reuse	N (%)	Change in pain (mean \pm S.D)
Very satisfied	228 (27)	2.92 \pm 2.02	Strongly agree	281 (33.3)	2.77 \pm 2.08
Satisfied	468 (55.4)	2.30 \pm 1.91	Agree	478 (56.6)	2.14 \pm 1.87
Neutral	138 (16.3)	1.41 \pm 1.66	Neutral	76 (9)	1.76 \pm 1.66
Dissatisfied	4 (0.5)	1.25 \pm 1.5	Disagree	6 (0.7)	1.33 \pm 2.07
Very dissatisfied	6 (0.7)	2.17 \pm 1.60	Strongly disagree	1 (0.1)	5 \pm 0
Non-response	1 (0.1)		Non-response	3 (0.4)	
Total	845	$p < 0.0001^*$	Total	845	$p < 0.0001^*$

* Statistically significant.

Although treatments were not completed at the time of the survey, 697 patients (82.4%) expressed general satisfaction with Korean medicine treatment. A total of 759 patients (89.7%) were willing to reuse Korean medicine in the future.

Automobile insurance, based on the concept of compensation for injuries, provides comprehensive services which include basic treatments to rehabilitation to help patients recover and return to their everyday lives. For this reason, automobile insurance guarantees some non-reimbursement items that are not included in national health insurance policies, which provides increased scope for Korean medicine treatments. This factor is conjectured to be directly related to satisfaction and utilization rates. In 2013, out of the total amount of 50,742,582,327 Korean won in national health insurance benefits, Korean medicine treatment expenses amounted to 1,908,211,295 Korean won, accounting for 4.2% of total expenditure; but out of 1.388 trillion Korean won, which was the total medical expense covered by automobile insurance in 2014, the expenses charged for Korean medical treatment was 270.1 billion Korean won, accounting for 19.5% [15]. The most common reason for choosing Korean medicine institutions for TA treatment was that Korean medicine was more effective than conventional medicine [16].

Taken together, these results show that most TA patients who visited Korean medicine hospitals were satisfied with Korean medicine hospital treatment and services. However, they did not show satisfaction for all Korean medicine treatments, and were especially in favor of pharmacopuncture and acupuncture. Based on these findings, additional research should be conducted to effectively apply various Korean medicine treatments such as acupuncture, Chuna manual therapy, and Korean medicine physiotherapy. In addition, symptoms usually appeared within two days after the accident, and the majority of patients were shown to visit the hospital within 48 hours. Results also showed that greater post-treatment pain differences were associated with higher patient satisfaction of and intention to revisit Korean medicine institutions.

As a large-scale survey conducted simultaneously in various regions of the country, the results of this nationwide study can be utilized as a basic resource tool to gauge the overall status of TA patients. The purpose of this study was to evaluate the satisfaction of TA patients who received Korean medicine treatment and to evaluate the prognosis and outcome by treatment time.

However, this study is limited in that only pain was measured in evaluation of prognosis and outcome assessment. In addition, as a cross-sectional study which included a survey evaluation at an arbitrary timepoint, this study also holds limitations in that most patients were at the early stages of treatment, and the information on treatment duration was not conclusive.

There is also the possibility of selection bias in that patients with high levels of satisfaction may have had higher retention rates and consequently selected at a higher frequency as subjects. Although it is difficult to accurately discern population characteristics as the study recruited patients within a specific time period at select institutions, the authors made efforts to recruit varied patients at various institutions nationwide.

As the questionnaire relies on subjective assessment of patients, data can be exposed to information bias, and there is risk of recall bias for items requiring retrospect.

The readers are therefore advised to exercise caution in interpretation of results as bias due to residual confounding other than variables not covered by the questionnaire cannot be excluded. An added weakness of this study is that only rankings of overall satisfaction are presented as the survey did not investigate individual treatment satisfaction rates.

Still, through further research utilizing more comprehensive clinical data and evaluation tools, a more practical and extensive assessment of satisfaction and treatment rates of Korean medicine services is expected to be made possible. This study is anticipated to provide a basis for future prospective survey studies.

In summary, the results obtained from this survey conducted in 845 TA patients visiting Korean medicine hospitals from February 25, 2016 to March 9, 2016 indicated highest satisfaction for pharmacopuncture treatment, followed by acupuncture and Chuna manual therapy. This study determined the characteristics and status of TA patients using Korean medicine and suggests the need for further more inclusive studies.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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Appendix 1. Survey Questionnaire.

[Satisfaction survey for Korean medicine treatment]

All responses will be analyzed anonymously.

1. What is your gender.

- ① Male ② Female

2. What is your age range.

- ① Teenager ② 20s ③ 30s ④ 40s ⑤ 50s ⑥ ≥60s

■ The next questions are general items relating to traffic accident details.

1. The circumstance of the traffic accident at the time of the accident was.

- ① Frontal collision ② Side collision ③ Rear-impact collision ④ Pedestrian
-
- ⑤ Other ()

2. The speed of the vehicle at the time of the accident was.

- ① At a stop ② ≤30km/h ③ ≤50km/h ④ ≥50km/h ⑤ Walking

3. The seated/walking position at the time of the accident was.

- ① Driver's seat ② Assistant seat ③ Back seat ④ Walking
-
- ⑤ Other ()

4. The occurrence time of the accident was.

- ① Within 1 week ② Within 2 weeks ③ Within 3 weeks ④ Within 4 weeks
-
- ⑤ ≥4 weeks

5. The onset of pain after the accident was on/at.

- ① The day of the accident ② The next day ③ 1 week ④ 2 weeks ⑤ ≥2 weeks

6. The region with pain occurrence at the time of the accident was. (Multiple responses allowed)

- ① Neck ② Low back ③ Shoulder ④ Knee ⑤ Other ()

■ The next items relate to the treatment period for traffic accident-associated symptoms.

1. The first visit to the hospital for traffic accident-associated symptoms was on/at.

- ① The day of the accident ② The next day ③ 1 week ④ 2 weeks ⑤ ≥2 weeks

1-1. The reason for postponing treatment after the traffic accident was. (This item only applies to respondents who answered ③-⑤ to Item 1)

- ① I had no injury or pain following the accident
-
- ② The injury or pain following the accident was endurable
-
- ③ I could not spare the time for treatment
-
- ④ I could not afford it financially
-
- ⑤ Other ()

2. The level of pain at the first visit to the hospital after the traffic accident was.

Please indicate the level of pain out of numbers 0 to 10.

0	1	2	3	4	5	6	7	8	9	10
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No pain

Severe pain

3. The region with pain at the first visit to the hospital after the traffic accident was. (Multiple responses allowed)

- ① Neck ② Low back ③ Shoulder ④ Knee ⑤ Other ()

4. The movement capacity of the region with pain at the first visit to the hospital after the traffic accident was.

- ① I had no difficulty flexing and extending
-
- ② Although I had a little difficulty, I could flex and extend
-
- ③ Although I had difficulty, I could flex and extend
-
- ④ I had difficulty flexing and extending
-
- ⑤ I could not flex or extend

■ The next items relate to satisfaction with Korean medicine treatment for traffic accident-associated symptoms.

1. What Korean medicine treatment(s) did you receive after the traffic accident. (Please indicate all relevant treatments)

- ① Acupuncture ② Chuna manual therapy ③ Bee venom pharmacopuncture, pharmacopuncture ④ Do-in conduction exercise ⑤ Herbal medicine

2. Of these treatment(s), which treatment was most satisfactory.

- ① Acupuncture ② Chuna manual therapy ③ Bee venom pharmacopuncture, pharmacopuncture ④ Do-in conduction exercise ⑤ Herbal medicine

3. The level of pain after treatment for traffic accident-associated symptoms.

Please indicate the level of pain out of numbers 0 to 10.

0	1	2	3	4	5	6	7	8	9	10
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No pain

Severe pain

4. The level of satisfaction with Korean medicine treatment for traffic accident-associated symptoms.

- ① Very satisfied ② Satisfied ③ Neutral ④ Dissatisfied ⑤ Very dissatisfied

5. Do you intend to reuse Korean medicine for reasons other than traffic accidents in the future.

- ① Strongly agree ② Agree ③ Neutral ④ Disagree ⑤ Strongly disagree

■ The next items relate to existence of musculoskeletal disorders prior to the traffic accident.

1. The region of the musculoskeletal disorder prior to the traffic accident. (If none, then end of survey)

- ① None ② Low back ③ Neck ④ Knee ⑤ Other ()

2. Have you received medical treatment for this musculoskeletal disorder.

- ① Yes ② No

3. The level of pain of the musculoskeletal disorder region at the time answered above.

Please indicate the level of pain out of numbers 0 to 10.

0	1	2	3	4	5	6	7	8	9	10
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No pain

Severe pain

4. Did you receive treatment for the above musculoskeletal disorder region at the first visit to the hospital after the traffic accident.

- ① Yes ② No

Thank you.