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Patients' knowledge, attitude, and practice regarding osteochondral lesions of the talus: a cross-sectional study

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Patients' knowledge, attitude, and practice regarding osteochondral lesions of the talus: a cross-sectional study

Running title: KAP of OLT among patients

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Abstract

Objective: To investigate patients' knowledge, attitude, and practice (KAP) regarding osteochondral lesions of the talus (OLT).

Design: A cross-sectional study.

Setting: Between March and September 2023, at the Ninth People's Hospital of Wuxi, Affiliated with Soochow University.

Participants: Among patients with OLT.

Primary and secondary outcome measures: KAP scores and associated factors.

Results: A total of 3166 valid questionnaires were enrolled, including 386 (71.88%) females, with a mean age of 27.18 ± 11.01 years. The mean KAP scores were 17.28 ± 4.84 (possible range: 0-28), 29.44 ± 4.21 (possible range: 9-45), and 18.01 ± 5.39 (possible range: 6-30), respectively. Structural equation modeling revealed that job, medical insurance, a history of ankle sprains, and with cartilage injury of the talus had direct effects on knowledge. Knowledge and gender had direct effects on attitude. Furthermore, knowledge, attitude, medical insurance, and recovered from ankle injury had direct effects on practice (all P<0.05).

Conclusion: Patients had inadequate knowledge, negative attitude and inactive practice toward OLT. Gender, job, medical insurance, cartilage injury of the talus, history of ankle sprains, and recovered from ankle injury might have effect on their KAP.

Keywords: knowledge; attitude; practice; patient; calcaneal cartilage injury; cross-sectional study

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Strengths and limitations of this study

Strengths

Large sample size: With 3166 valid questionnaires collected, the study had a substantial number of participants, increasing the robustness and generalizability of the findings.

Structured analysis: The use of structural equation modeling allowed for the identification of direct effects of various factors on patients' knowledge, attitude, and practice, providing valuable insights into the relationships between these variables.

Limitations

Cross-sectional design: The cross-sectional nature of the study limits the ability to establish causality between variables, and longitudinal studies may be needed to confirm the relationships identified.

Self-reported data: Reliance on self-reported responses in the questionnaires may introduce response bias or inaccuracies, affecting the reliability of the results.

Single-center study: Conducting the research at a single hospital may limit the generalizability of the findings to a broader population, as patient demographics and healthcare practices can vary across different settings.

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Introduction

Osteochondral lesions of the talus (OLT), recognized as an increasingly common injury, are one of the major challenges in orthopedic surgery, often resulting from acute ankle trauma [1, 2]. These lesions involve the articular cartilage of the talus and associated subchondral bone, and they occur in up to 73% of all ankle fractures, 50% of ankle sprains, and 41% of ankles with lateral instability [3, 4]. The talus's small articular surface, combined with its exposure to high loads, makes it particularly susceptible to such degenerative lesions [5]. These injuries, characterized by cartilage degeneration, lead to joint pain and destruction, presenting a significant hurdle in orthopedic care [6]. Additionally, OLT remain a common and challenging issue in the field, often encountered in the context of ankle injuries, particularly in sports medicine [7, 8]. Effective management and treatment strategies for these lesions are vital in providing the best possible care and outcomes for patients with OLT.

Knowledge, Attitude, and Practices (KAP) survey, serving as a diagnostic research tool, reveals a group's understanding, beliefs, and behaviors regarding a specific topic, particularly in health literacy [9-11] Considering that OLT can result in pain and discomfort in the heel area, negatively impacting patients' quality of life, in addition, patients' KAP are crucial for the improvement of clinical practice [12]. Understanding patients' knowledge can reveal the extent of their understanding of the disease, which aids healthcare professionals in better communication and information dissemination [13]. Understanding patients' attitudes can help identify potential misconceptions, anxiety, or fear, enabling the provision of more appropriate support and education. Most importantly, understanding patients' actual behaviors can reveal the measures they take when confronted with the disease, aiding healthcare professionals in refining treatment plans and rehabilitation recommendations [14]. Therefore, this study aimed to investigate parents' KAP regarding OLT.

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Materials and Methods

Study design and participants

This cross-sectional study was conducted between March and September 2023, at the Ninth People's Hospital of Wuxi, Affiliated with Soochow University towards patients of OLT. The inclusion criteria were restricted to patients and their accompanying individuals who were admitted for ankle and foot surgery. This study was approved by the Ethic Committee of the Ninth People's Hospital of Wuxi, Soochow University (KS2023070), and all participants provided written informed consent.

Questionnaire

The design of the questionnaire was informed by a comprehensive review of relevant literature pertaining to OLT. Following the development of the initial questionnaire draft, a reliability assessment was undertaken, yielding a Cronbach's α coefficient of 0.823. This value signifies a robust level of internal consistency for the questionnaire.

The final questionnaire, which was administered in Chinese, encompassed data collection across four distinct dimensions, comprising a total of 49 items. The "Sociodemographic characteristics" dimension, which included 19 items, gathered data on various aspects such as age, gender, height, body mass index (BMI), education, ethnicity, employment, monthly per capita income, smoking states, alcohol consumption, insurance coverage, frequency of walking on uneven surfaces, regular engagement in sports activities, history of ankle sprains, unfixed tender points around the ankle joint, the severity of ankle injuries, the occurrence of OLT, recovered from ankle injury, and the presence of underlying or chronic diseases. The "Knowledge Dimension," consisting of 14 items, evaluated respondents' knowledge with all items having correct answers, where each correct response earned 2 points, unclear answers received 1 point, and incorrect answers received 0 points, resulting in a potential score range of 0 to 28 points. The "Attitude Dimension," comprising 9 items, primarily utilized a

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five-point Likert scale, where items 7, 8, and 9 had specific scoring values assigned to each response option. Items 1 to 6 had reversed scoring. The potential score range for the attitude dimension ranged from 9 to 45 points. The "Practice Dimension," which consisted of 6 items, utilized a five-point Likert scale, with item 8 having reversed scoring, and the potential score range for the practice dimension was 6 to 30 points. Attaining scores above 70% of the maximum in each section indicated adequate knowledge, positive attitude, and proactive practice [15].

Questionnaire distribution and quality control

The questionnaires were administered to study participants using a dual approach through WeChat and in the clinical setting. This process involved four dedicated research assistants who played pivotal roles in the distribution and collection of the questionnaires. To ensure the smooth execution of these tasks, the research assistants underwent training in small, face-to-face meetings, which encompassed a brief orientation to the subject matter of OLT, as well as comprehensive instruction on the proper procedures for questionnaire distribution and collection. Regular monthly meetings were convened to review the survey's progress and promptly address any emerging issues. The sampling strategy entailed random selection of patients during their clinic visits and subsequent follow-up appointments. Initially, the sampling pool comprised around patients who met the specified research criteria, although those with inaccurate contact information were subsequently excluded despite efforts to rectify this through communication. Contact information and options for follow-up, including phone numbers, email addresses, and clinic appointments, were thoughtfully provided to participants to facilitate communication and address any concerns in the later stages of the study. During data cleansing, respondents who completed the questionnaire in less than 90 seconds, those who omitted essential demographic information such as age and height, and

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individuals who were unwilling to disclose their other medical conditions, were regard as invalid questionnaire.

Statistical analysis

Statistical analysis was conducted using R 4.3.1 software. Continuous variables were described using mean ± standard deviation (SD), and between-group comparisons were performed using t-tests or analysis of variance (ANOVA). Categorical variables were presented as n (%). Pearson correlation analysis was employed to assess the correlations among KAP scores. In multivariate analysis, 70% of the maximum possible score was used as the cut-off value. Variables in univariate logistic regression analysis with P<0.05 were enrolled in multivariate logistic regression analysis. Hypotheses were validated using structural equation modeling (SEM). Two-sided p<0.05 were considered statistically significant in this study. review only

Results

Initially, 4275 questionnaires were collected for this study. After excluding, the final dataset comprised 3166 valid responses, resulting in a valid response rate of 74.06%. Among these respondents, 386 (71.88%) were female, with an average age of 27.18 \pm 11.01 years. Their mean KAP scores were 17.28 \pm 4.84 (possible range: 0 - 28), 29.44 \pm 4.21 (possible range: 9-45), and 18.01 \pm 5.39 (possible range: 6-30), respectively. The knowledge and practice scores varied from patients with medical insurance states (P = 0.005 and P = 0.033), history of ankle sprains (P = 0.026 and P = 0.001), with unfixed tender points around the ankle joint (P = 0.020 and P = 0.002), with an injury to the calcaneal cartilage (both of P < 0.001), and whether recovered (P = 0.025 and P = 0.005). Meanwhile, the knowledge score varied from patients with different employment (P < 0.001), monthly per capita income (P < 0.001), alcohol consumption (P = 0.047). Attitude scores were more likely to differ by gender (P < 0.028), employment (P = 0.033), monthly per capita income (P < 0.028), employment (P = 0.033), monthly per capita income (P < 0.001), and smoking states (P = 0.028) (Table 1).

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The distribution of knowledge dimensions revealed that the question with the highest number of participants choosing the "Correct" option were K5 with 48.23%. On the contrary, the question with the highest number of participants choosing the "Unclear" option were K7 with 60.89% (**Table S1**). Regarding attitudes, a significant portion (56.43%) of respondents recognized the significance of ankle sprains, emphasizing that they should not be taken lightly (A1). Acceptance of minimally invasive arthroscopic treatment was shown by a significant majority (38.36%), perceiving it as having minimal trauma and low risk (A7). A significant number (45.81%) strongly agreed or agreed that it is necessary to visit the hospital for potential OLT after an ankle sprain (A8). A substantial majority (49.54%) expressed their willingness to gain a comprehensive understanding of the emergency treatment and daily

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management of OLT (A9) (**Table S2**). Participants demonstrated varied behavioral practices, 39.11% of the participants mentioned prioritizing rest to alleviate strain on the ankle and reduce the risk of calcaneal cartilage injury (P3). A substantial 56.61% of respondents reported their inclination to base their treatment decisions on medical advice (P5). Interestingly, 31.48% of participants expressed their openness to considering minimally invasive surgery as a treatment option (P6), while only 5.77% stated they would never consider it (**Table S3**).

Pearson's correlation analysis showed that significant positive correlations were found between knowledge and attitude (r = 0.076, P = 0.077), knowledge and practice (r = 0.382, P < 0.001), and attitude and practice (r = 0.220, P < 0.001) (Table S4). Multivariate logistic regression showed that employed (OR = 1.667, 95% CI: 1.100-2.528, P = 0.016), history of ankle sprains (OR = 1.603, 95% CI: 1.057-2.434, P = 0.026), and with unfixed tender points around the ankle joint (OR = 1.713, 95% CI: 1.009-2.911, P = 0.046) were independently associated with knowledge. Knowledge (OR = 1.050, 95% CI: 1.007-1.094, P = 0.022) and age (OR = 0.974, 95% CI: 0.947-0.999, P = 0.048) were independently associated with attitude. Furthermore, knowledge (OR = 1.114, 95% CI: 1.060-1.171, P < 0.001), attitude (OR = 1.114, 95% CI: 1.085-1.209, P < 0.001), and with cartilage injury of the talus (OR = 1.114, 95% CI: 1.085-1.209, P < 0.001)5.584, 95% CI: 1.991-15.813, P = 0.001) were independently associated with practice (Table 2). The SEM analysis indicated a highly favorable model fit, affirming a well-fitting model (Table S5). It revealed that job (Coef. = 1.33, P = 0.002), medical insurance (Coef. = 1.19, P = 0.019), a history of ankle sprains (Coef. = 1.08, P = 0.009), and with cartilage injury of the talus (Coef. = -0.73, P = 0.001) had direct effects on knowledge. Additionally, knowledge (Coef. = 0.08, P = 0.032) and gender (Coef. = -1.81, P = 0) had direct effects on attitude. Furthermore, knowledge (Coef. = 0.38, P = 0), attitude (Coef. = 0.18, P = 0), medical

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4	insurance (Coei. = 1.05, $P = 0.045$), and recovered from ankle injury (Coei. = 1.38, $P = 0.025$)
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Discussion

Patients had inadequate knowledge, negative attitude and inactive practice toward OLT. This study suggests implementing educational programs to improve patient knowledge, addressing misconceptions, and encouraging early intervention and active participation in treatment. Additionally, ensuring adequate medical insurance coverage is essential to facilitate access to care and improve patient outcomes.

The findings highlight the need for interventions to improve clinical practice. To address these challenges, it is crucial to develop educational programs and materials aimed at enhancing patients' understanding of OLT [16]. Moreover, efforts should focus on dispelling misconceptions and fostering more positive attitudes toward treatment and rehabilitation [17]. Additionally, ensuring access to adequate medical insurance coverage can mitigate financial barriers that might otherwise hinder patients' access to necessary care [18-20].

The study's findings highlight several key factors influencing patients' KAP. Notably, employment, monthly per capita income, medical insurance, history of ankle sprains, with unfixed tender points around the ankle joint, and the existence of OLT were all associated with varying levels of knowledge, attitudes, and practices. These results emphasize the importance of tailoring patient education and awareness campaigns to specific demographic and health-related factors to bridge the knowledge gap [16, 21]. The association between medical insurance coverage and practice scores underlines the significance of ensuring financial accessibility to medical care for patients [22, 23].

The findings of this study shed light on the notable variations in patients' understanding of OLT. While some respondents demonstrated a basic awareness of the term "OLT," the specific details regarding the location, function, symptoms, and treatment of OLT were less clear to many. Several misconceptions and uncertainties were evident, such as the misconception that calcaneal cartilage can regenerate and the underestimation of the chronic

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nature of these injuries. This limited knowledge underscores the need for comprehensive patient education initiatives, emphasizing accurate information about OLT, their management, and potential long-term consequences [18, 24, 25]. Ensuring that patients have a correct understanding of this topic is essential for improving clinical practice, enabling early recognition, prompt intervention, and better long-term outcomes for patients with OLT [26, 27].

In the attitude dimension, it is evident that some patients hold attitudes that may hinder clinical practice. For example, a significant proportion of respondents consider ankle sprains as minor injuries, potentially leading to a lack of attention and delayed intervention when OLT are associated with such sprains. The belief that OLT can heal on their own and that self-medication can expedite recovery might discourage patients from seeking professional medical care promptly. On the positive side, a considerable number of respondents seem to be open to minimally invasive arthroscopic treatment, indicating potential acceptability of this approach in clinical practice. These findings underscore the importance of addressing and redirecting potentially detrimental attitudes through patient education and awareness campaigns. Encouraging a more informed, proactive, and open-minded approach to OLT is essential for improving clinical practice and ultimately patient outcomes [28-30].

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The practice dimension highlights patients' intentions and behaviors regarding OLT. Notably, there is room for improvement in several areas to enhance clinical practice. While a substantial percentage of respondents express their intention to proactively learn about OLT, it is crucial to ensure that these intentions translate into informed actions [31, 32]. Going to the hospital for a check after an ankle injury is a positive practice, but more patients could adopt this approach. However, there is still room for improvement, especially in ensuring that patients choose treatment plans based on medical advice. Overall, these results emphasize the need for patient education that fosters informed decision-making, promotes best practices in

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 the management of OLT, and encourages patients to follow medical recommendations, ultimately contributing to improved clinical outcomes [33, 34].

The significant positive correlations between knowledge and attitude, as well as between knowledge and practice, indicate that an increase in knowledge is associated with more favorable attitudes and more proactive practices [35]. Similarly, the correlation between attitude and practice highlights the interconnected nature of these aspects. The SEM analysis reveals that job, medical insurance, a history of ankle sprains, and the presence of a calcaneal cartilage injury directly impact knowledge. Moreover, knowledge and gender directly affect attitude, and knowledge, attitude, medical insurance, and recovered from ankle injury directly influence practice. These understanding can inform tailored interventions aimed at enhancing clinical practice by addressing these influential factors and fostering more informed, positive, and proactive patient engagement in the management of OLT [36, 37].

This study had limitations, including its single-center, regional focus, potentially limiting the generalizability of findings; the cross-sectional design's inability to establish causality or track changes over time; reliance on self-administered questionnaires, which may introduce response bias and interpretation inaccuracies; the possibility of social desirability bias in participant responses; limited demographic information, hindering the exploration of influential factors; the complexity of interpreting Structural Equation Modeling results; and the absence of long-term follow-up, which could provide insights into changes in patients' KAP.

In conclusion, patients had inadequate knowledge, negative attitude and inactive practice toward OLT. Knowledge, attitude, gender, job, medical insurance, cartilage injury of the talus, history of ankle sprains, and recovered from ankle injury might have effect on their KAP. To improve patient outcomes and care in this context, targeted interventions are warranted. Healthcare providers should focus on increasing patients' knowledge about OLT, potentially

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 through educational programs and materials. Moreover, efforts should be made to foster a more positive attitude among patients by addressing their concerns and misconceptions. Encouraging early intervention and active participation in treatment and rehabilitation should be a key objective. Lastly, it is crucial to emphasize the significance of medical insurance coverage for these injuries, ensuring that financial barriers do not hinder access to appropriate care.

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Ethics approval and consent to participate

This work has been carried out in accordance with the Declaration of Helsinki (2000) of the World Medical Association. This study was approved by the Ethic Committee of the Ninth People's Hospital of Wuxi, Soochow University (KS2023070), and all participants provided written informed consent.

The Patient and Public Involvement statement

No patient or public involved in this study.

Consent for publication

Not applicable

Availability of data and materials

All data generated or analyzed during this study are included in this article.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Xueming Chen and Chang She carried out the studies, participated in collecting data, and drafted the manuscript. Xingfei Zhang and Wencheng Wang performed the statistical analysis and participated in its design. Xueming Chen and Yuxuan Zhang participated in acquisition, analysis, or interpretation of data and draft the manuscript. All authors read and approved the final manuscript.

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 Figure legend SEM Figure 1. to beet terien only

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Table 1. Sociodemographic ch	aracteristics)24-087402 ht, includi		
Variables	Overall	K		Α	2 on 3 / ng for i	Р	
v al labits	N(%)	Mean ± SD	Р	Mean ± SD	P P P P	Mean ± SD	Р
Age	27.18 ± 11.01	17.28 ± 4.84		29.44 ± 4.21	9125. Do gneme slated	18.01 ± 5.39	
Gender			0.492		to to Sup <0.00		0.01
Male	151 (28.12)	16.88 ± 4.72		28.16 ± 4.08	ided fr berieur and di	16.99 ± 5.72	
Female	386 (71.88)	17.44 ± 4.88		29.94 ± 4.15	om htt (ABE) ata mil	18.40 ± 5.21	
BMI, kg/m ²	22.21 ± 4.92				p://bm S) . ning, A		
Education			0.530		0.475 ini		0.02
Junior high school or below	84 (15.64)	16.56 ± 4.67		28.51 ± 4.15	ng, an	17.23 ± 5.09	
High school / Vocational schoo	1 74 (13.78)	17.36 ± 5.14		29.51 ± 4.32	n/ on c d simil	17.51 ± 5.06	
College / Bachelor's degree	361 (67.23)	17.42 ± 4.82		29.65 ± 4.17	lune 1(ar tech	18.13 ± 5.51	
Master's degree and above	18 (3.35)	17.67 ± 4.88		29.17 ± 4.46), 2025 Inologi	21.17 ± 4.74	
Ethnicity			0.361		0.981 Ag		0.08
Han ethnicity	460 (85.66)	17.37 ± 4.93		29.43 ± 4.25	ence B	18.14 ± 5.46	
Ethnic minority	77 (14.34)	16.75 ± 4.25		29.47 ± 3.94	ibliographi	17.19 ± 4.92	
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	0.180udi		<0.001			Employment
18.58 ± 5.13	2 on 3 , ng for	29.13 ± 4.22		18.24 ± 5.22	202 (37.62)	Employed
17.66 ± 5.52	April 2 Ense uses r	29.62 ± 4.19		16.71 ± 4.50	335 (62.38)	Unemployed
	ignemen 0.771ted to		<0.001			Monthly Per Capita Income,
	rnload t Supe text a					Yuan
16.29 ± 5.14	led fro erieur ınd da	28.61 ± 4.09		16.54 ± 4.82	59 (10.99)	<2,000
18.15 ± 5.31	ym http (ABES Ita min	29.41 ± 3.66		17.44 ± 5.05	158 (29.42)	2,000-5,000
19.78 ± 4.44	o://bmj 3) . ing, A	29.36 ± 4.37		18.75 ± 4.65	107 (19.93)	5,000-10,000
19.18 ± 5.91	open.t	29.56 ± 5.01		18.26 ± 5.19	57 (10.61)	>10,000
16.87 ± 5.57	ymj.cor ng, and	29.80 ± 4.33		16.04 ± 4.28	156 (29.05)	Prefer not to disclose
	0.115 mil		0.087			Smoking
18.34 ± 5.24	June 10 ar tech	29.63 ± 4.11		17.56 ± 4.84	406 (75.61)	Never smoked
16.44 ± 6.21	0, 2025 nnolog	29.11 ± 4.41		16.67 ± 4.44	55 (10.24)	Former smoker
17.34 ± 5.40	ies.	28.64 ± 4.51		16.25 ± 4.97	76 (14.15)	Current smoker
	0.390 8 B		0.047			Alcohol Consumption
18.43 ± 5.32	ibliogra	29.64 ± 4.33		17.70 ± 4.90	311 (57.91)	Never consumed alcohol
	ıphique d					
	que de nes.xhtml	′site/about/guidelir	omjopen.bmj.com 23	view only - http://b	For peer re	

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Page 25 of 52				BMJ Open		/bmjopen- 1 by copyr		
1 2 3	Former drinker	83 (15.46)	17.02 ± 4.41		29.14 ± 4.14	2024-0874 ight, inclu	17.52 ± 5.23	
4 5 6	Current drinker	143 (26.63)	16.53 ± 4.88		29.18 ± 3.96	02 on 3 Iding fo	17.36 ± 5.58	
7 8	Medical Insurance			0.005		0.256		0.003
9 10 11	Yes	429 (79.89)	17.56 ± 4.92		29.52 ± 4.14	1025. Do Dignemo related	18.37 ± 5.34	
12 13	No	108 (20.11)	16.18 ± 4.36		29.12 ± 4.47	ownloa ent Sur to text	16.56 ± 5.40	
14 15 16	Frequent Walking on Uneven			0 299		and da		0 792
17 18	Surfaces			0.277		(ABES		0.772
19 20	Yes	200 (37.24)	17.58 ± 4.78		29.43 ± 4.60	;//bmj ;) . ing, Al	18.01 ± 5.76	
21 22 23	No	337 (62.76)	17.11 ± 4.87		29.45 ± 3.96	open.b trainir	18.00 ± 5.17	
24 25	Frequent Participation in			0.337		0.459 ^g nd		0.420
26 27	Sports					∿ on Ju I simila		
28 29 30	Yes	183 (34.08)	17.57 ± 5.35		29.52 ± 4.28	une 10 ır techr	18.21 ± 5.84	
31 32	No	354 (65.92)	17.13 ± 4.55		29.40 ± 4.17	, 2025 ; nologie	17.90 ± 5.15	
33 34	History of Ankle Sprains			0.026		0.506 Age		0.034
35 36 27	Yes	221 (41.15)	17.88 ± 4.88		29.33 ± 4.34	nce Bil	18.52 ± 5.38	
37 38 39	No	316 (58.85)	16.86 ± 4.78		29.52 ± 4.12	bliogra	17.64 ± 5.38	
40 41						phique		
42 43		For peer rev	view only - http://b	mjopen.bmj.com/si	te/about/guideline	es.xhtml		
44 45				24	-			

Unfixed Tender Points			0.020		0.200 uc 08740		0.0
Around the Ankle Joint)2 on 3 ling for		
With	108 (20.11)	18.36 ± 4.98		29.25 ± 4.40	April 2 Ense uses i	18.75 ± 4.82	
Without	300 (55.87)	17.16 ± 5.03		29.65 ± 4.22	025. Do elated	18.27 ± 5.55	
Unclear	129 (24.02)	16.67 ± 4.10		29.11 ± 4.02	ownloa ent Sul to text	16.76 ± 5.30	
Severity of Ankle Injury			0.323		0.741d d		0.44
Very severe, unable to walk	23 (4.28)	16.04 ± 4.62		29.48 ± 4.98	om htt · (ABEs ata mir	19.04 ± 4.81	
Moderately severe, pain with	66 (12 20)	16.67 ± 5.46		28.88 ± 3.80	o://bmj S) . ving, A	18.33 ± 4.81	
pressure	00 (12.29)				open.b I trainii		
Not very severe, slight pain	448 (83 43)	17.44 ± 4.75		29.52 ± 4.23	ng, and	17.90 ± 5.50	
with pressure	110 (05.15)				n/ on J I simila		
Cartilage Injury Of The Talus			< 0.001		0.192 tech 10		<0.
Yes	21 (3.91)	19.00 ± 4.72		28.05 ± 3.89	nologi	20.14 ± 6.21	
No	296 (55.12)	17.87 ± 5.11		29.71 ± 4.40	at Age es.	18.57 ± 5.44	
Unclear	220 (40.97)	16.33 ± 4.29		29.21 ± 3.94	ince Bi	17.05 ± 5.11	
Recovered From Ankle Injury			0.025		0.493 bliograph		0.0

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Page 27 of 52					BMJ Open		/bmjope 1 by cop		
1 2							n-2024-08 yright, in		
3 4	Yes		463 (86.22)	17.48 ± 4.76		29.43 ± 4.25	3740) cludi	18.26 ± 5.33	
5 6 7	No		74 (13.78)	16.07 ± 5.20		29.50 ± 3.94	2 on 3 A ng for u	16.43 ± 5.57	
8	Underlying	or Chron	nic				upril 2 Ense Jses r		
9 10 11	Diseases						025. Do igneme elated t		
12 13	Hypertension				0.509		0.500 text		0.431
14 15 16	Yes		28 (5.21)	17.25 ± 5.05		28.61 ± 5.32	ded fro erieur and da	18.82 ± 5.56	
17 18	No		509 (94.79)	17.28 ± 4.83		29.49 ± 4.14	om htt (ABE: ata mir	17.96 ± 5.39	
19 20	Hyperlipidemia	L			0.845		0.071g,		0.151
21 22	Yes		7 (1.30)	17.29 ± 5.71		26.71 ± 3.73	jopen. \I train	15.71 ± 3.09	
23 24	No		530 (98.70)	17.28 ± 4.83		29.48 ± 4.20	bmj.cc ing, ar	18.04 ± 5.41	
25 26	Diabetes				0.205		0.207 mini on		0.975
27 28 29	Yes		8 (1.49)	14.63 ± 1.79		31.63 ± 4.87	June 10 ilar tech	17.88 ± 5.44	
30 31	No		529 (98.51)	17.32 ± 4.86		29.41 ± 4.19), 202! Inolog	18.01 ± 5.40	
32 33 34	Tumor, etc.				0.270		0.574 . Ag		0.133
35 36	Yes		4 (0.74)	14.00 ± 2.16		30.00 ± 4.24	ence B	13.50 ± 5.97	
37 38 39	No		533 (99.26)	17.31 ± 4.85		29.44 ± 4.21	iibliograp	18.04 ± 5.38	
40 41 42							ohique de		
43 44 45 46			For peer r	eview only - http://l	bmjopen.bmj. 26	com/site/about/guidelii	nes.xhtml –		

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Other			0.566		2024-08740 0.345ud		0.794
Yes	39 (7.26)	17.31 ± 4.88		29.92 ± 2.99	12 on 3 ling for	17.92 ± 4.83	
No	498 (92.74)	17.28 ± 4.84		29.40 ± 4.29	April 2 Ense uses I	18.01 ± 5.44	
None			0.224		0.821 elated		0.301
Yes	422 (78.58)	17.47 ± 4.90		29.49 ± 4.19	ownlo <i>a</i> ent Sul to text	18.14 ± 5.36	
No	115 (21.42)	16.61 ± 4.55		29.27 ± 4.36	aded fr and d	17.52 ± 5.49	
Prefer not to disclose			0.070		0.116 mii		0.026
Yes	51 (9.50)	16.24 ± 4.40		28.61 ± 4.14	p://bmj S) . ning, A	16.59 ± 5.63	
No	486 (90.50)	17.39 ± 4.87		29.53 ± 4.21	open.k I traini	18.15 ± 5.35	
Note: Quantitative variable	s are represented as N	1 ± SD, and cate	gorical varia	bles are represented	j.com/ on June 10, 2025 at Agence as N		
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Table 2.	Multivariate Logistic Regression Analys	is for Knowledg	ge, Attitude, Practice)24-087402 ht, includir		
		<u>ອ</u> ອກ M	ultivariate Analysis	sis		
Dimensio	on Variables	OR	95%CI	P P P P	R 95%CI	
Knowled	ge			ylated		
	Age	1.002	0.985-1.018	0.845 0.845 0.845		
	Gender			erieu and c		
	Male	0.878	0.573-1.329	0.545 Mir (ABE		
	Female	Ref.		s).//bm S) . Ning, /		
	BMI	0.993	0.955-1.031	0.723 Al traini		
	Education			ng, and		
	Junior high school or below	Ref.		d simil		
	High school / Vocational school	1.551	0.756-3.220	0.233 tec		
	College / Bachelor's degree	1.586	0.916-2.867	0.111 0, 202		
	Master's degree and above	2.333	0.764-6.834	0.125 9		
	Ethnicity			gence B		
	Han ethnicity	1.405	0.814-2.531	0.238 Ogra		
				t phiqu		
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Page 33 of 52					BMJ Open		/bmjopen-		
1 2 3 4 5		Yes		0.805 Ref	0.312-1.849	0.628	2024-087402 on		
6 7 8 9		Hyperlipidemia					3 April 20 Enseiç		
10 11 12		Yes		0.977	0.139-4.584	0.978	25. Dow gnemen		
13 14		No		Ref.			nloadec t Superi		
15 16 17		Yes		0.956	0.446-1.921	0.904	from ht eur (ABI		
18 19 20		No		Ref.		y,	ttp://bmj		
21 22 23		None					open.bn		
24 25 26		Yes		1.621	1.007-2.686	0.053	nj.com/		
26 27 28 -	A	No		Ref.	Č C		on Jun		
29 30	Attitude						e 10		
31 32		Knowledge		1.042	1.003-1.084	0.036	1 .050	1.007-1.094	0.022
33 34 25		Age		0.968	0.947-0.987	^ي 0.001	at 0.974	0.947-0.999	0.048
35 36 37		Gender					nce Bib		
38 39 40 41		Male		0.596	0.377-0.922	0.023	liographiqu	0.368-1.041	0.076
42 43 44 45 46			For peer review only	y - http://bn	njopen.bmj.com/site/about/guide 32	lines.xhtml	e de l		

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1 2				024-(yht, i		
3	Female	Ref.		nclue 74 Ref.		
5	DMI	1 021	0.002 1.060	3102 or		
6	BIVII	1.031	0.993-1.009	0.107 for 3		
8	Education			use:		
9				202 seig		
10	Junior high school or below	Ref.		ater Ref.		
12		1 500	0 5 4 0 0 4 5 4	d to the to	0 (00 0 105	0.410
13	High school / Vocational school	1.589	0.742-3.454	0.235 te s 1.400	0.620-3.185	0.418
14	Collage / Bachalor's dagree	2 1 2 3	1 104 4 000		0 537 2 480	0 746
15 16	Conege / Bacheloi s degree	2.123	1.194-4.000		0.337-2.480	0.740
17	Master's degree and above	1 314	0 337-4 293		0 282-4 158	0.812
18	indicities degree and doove		0.337 1.273		0.202 1.120	0.012
19	Ethnicity			ing,		
20	0			A B		
21	Han ethnicity	1.062	0.627-1.858	0.828 ta . b		
23				ning		
24	Ethnic minority	Ref.		ມ ຊີ		
25				nd s		
26 27	Employment			Simi On		
28		0.625	0.404.0.045		0 440 1 050	0.105
29	Employed	0.637	0.424-0.947	0.028 er e 0.692	0.440-1.079	0.107
30	Unamployed	Dof		D, D		
31 32	Onemployed	Kel.		logi 25		
33	Monthly Per Canita Income Vuan			es. at /		
34	Montiny I er Capita Income, I uan			Age		
35	<2.000	Ref.		nce		
36 37	,			Bit		
38	2,000-5,000	1.328	0.656-2.844	0.446 jj		
39				- Brag		
40				ohiq		
41 42				lue		
43	F					
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1				n-2024 yyright,		
2 3 4	5,000-10,000	1.747	0.838-3.832	0.148 ud 40;		
5 6	>10,000	1.958	0.854-4.632	0.117 for 3		
7 8 9	Prefer not to disclose	1.741	0.869-3.701	0.131 Uses re 0.131 re		
10 11	Smoking			125. Dov gnemei slated t		
12 13 14	Never smoked	Ref.		ont Super Ref.		
15 16	Former smoker	1.146	0.616-2.066	0.658 Industried 1.387	0.704-2.681	0.335
17 18 19	Current smoker	0.486	0.248-0.889		0.321-1.319	0.260
20 21	Alcohol Consumption			/bmjop g, Al tr		
22 23	Never consumed alcohol	Ref.	0.202.1.224	aining,		
24 25 26	Former drinker	0.707	0.392-1.226	0.230 and s.		
27 28 22	Medical Insurance	0.337	0.013-1.474	0.645 milar te		
29 30 31	Yes	1.234	0.769-2.027	0.394 0.20		
32 33 34	No	Ref.		95 at Aç gies.		
34 35 36	Frequent Walking on Uneven Su	urfaces		jence B		
37 38 39	Yes	1.281	0.871-1.880	0.206 g		
40 41				tphique		
42 43 44	For peer r	eview only - http://bmjo	pen.bmj.com/site/about/ 34	guidelines.xhtml		
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No	Ref.		24-08740: 1t, includi
Frequent Participation in Sports			2 on 3 ing for
Yes	1.335	0.902-1.969	0.146 USES
No	Ref.		1025. D Pignem related
History of Ankle Sprains			lent Su I to tex
Yes	0.873	0.593-1.279	1 and c 0.489 0.489
No	Ref.		rom htt lata mi
Unfixed Tender Points Around the			ining, /
Ankle Joint			Al train
With	0.717	0.427-1.175	0.196 an
Without	Ref.		nd simi
Unclear	0.809	0.505-1.276	0.369 tecl 1
Severity of Ankle Injury			0, 202: hnolog
Very severe, unable to walk	1.094	0.412-2.627	0.847 Ag
Moderately severe, pain with pressure	0.867	0.470-1.534	0.636 E
Not very severe, slight pain with pressure	Ref.		sibliog
			raphiq
			ue de

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Page 37 of 52		I	BMJ Open	ву сору
2				rrignt, i
 -	Cartilage Injury Of The Talus			nciua
	With	0.506	0.143-1.411	0.231 or
	Without	Ref.		uses re
)	Unclear	0.699	0.470-1.032	0.074
2 5	Recovered From Ankle Injury			o text a
	Yes	1.267	0.731-2.290	0.414 da
, }	No	Ref.		
	Underlying or Chronic Diseases			ng, Al t
	Hypertension			rainin
	Yes	0.837	0.324-1.922	0.690 , and
	No	Ref.		
	Hyperlipidemia			tecnno
	Yes	0.418	0.022-2.477	0.422 bogies
	No	Ref.		ŗ
	Other	0.00 .		
	Yes	0.995	0.463-1.999	0.988
)				
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No	Ref.		024-08740; yht, includ		
None			2 on 3 ing for		
Yes	1.031	0.656-1.649	0.898 uses		
No	Ref.		elated		
Practice			to text		
Knowledge	1.145	1.096-1.198	<0.001 d u f	1.060-1.171	< 0.00]
Attitude	1.151	1.095-1.212	<0.001 mir 1.144	1.085-1.209	< 0.00
Age	1.000	0.982-1.018	0.967 A		
Gender			open.t		
Male	0.481	0.284-0.785	0.005 g g 0.583	0.297-1.107	0.107
Female	Ref.		similar SRef.		
BMI	0.999	0.958-1.040	0.969 une 10		
Education			nologie		
Junior high school or below	Ref.		at Age ss.		
High school / Vocational school	1.175	0.548-2.524	0.677 BI		
College / Bachelor's degree	1.158	0.657-2.136	0.623 blio gra		
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1 2				yright, in	n-2024-0		
3 4	Master's degree and above	2.508	0.818-7.392	0.097 ucludi r	87402		
5 6 7	Ethnicity			ng for u	on 3 /		
7 8 9	Han ethnicity	1.547	0.846-3.033	0.177 es e	April 2		
10 11	Ethnic minority	Ref.		elated	025. Do		
12 13	Employment			to text	ownloa		
14 15 16	Employed	1.347	0.892-2.026	0.154 da	ded fro		
17 18	Unemployed	Ref.		(ABES			
19 20 21	Monthly Per Capita Income, Yua	n) · ing, Al	://bmjc		
21 22 23	<2,000	Ref.		trainin	Ref.		
24 25	2,000-5,000	1.814	0.821-4.448	0.162 and	1 .438	0.599-3.790	0.436
26 27	5,000-10,000	3.232	1.446-8.010	0.007 simila	9 2.541	1.035-6.847	0.051
28 29 30	>10,000	2.942	1.192-7.827	0.023 rtech	10,2.473	0.887-7.371	0.091
31 32	Prefer not to disclose	1.275	0.562-3.180	0.578 00	2023	0.491-3.240	0.692
33 34	Smoking			Ň	at Ager		
35 36 37	Never smoked	Ref.			Ref.		
38 39	Former smoker	0.423	0.171-0.908	0.041	oliograf 0.698	0.231-1.898	0.498
40 41					ohique		
42 43 44 45	For peer rev	view only - http://bmjc	open.bmj.com/site/about/ 38	guidelines.xhtml	de I		
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1 2 3 4	Current smoker	0.544	0.271-1.015	rright, includ 0.069	1-2024-08 740	0.394-2.281	0.937	
5 6 7	Alcohol Consumption			ing for u	2 on 3 A			
8 9	Never consumed alcohol	Ref.		Ensei Ises re	pri:Ref. ≥			
10 11	Former drinker	0.587	0.308-1.057	0.088 diated	0.791	0.371-1.612	0.530	
12 13	Current drinker	0.510	0.300-0.838	0.010 to text	ownloa	0.337-1.190	0.168	
14 15 16	Medical Insurance			and da	ded fro			
17 18	Yes	1.911	1.103-3.501	0.027 ta mini	1.431	0.775-2.767	0.267	
19 20 21	No	Ref.		ing, Al	Ref.			
22 23	Frequent Walking on Uneven Surfaces			training	pen.bn			
24 25	Yes	0.964	0.632-1.458	0.863 and	nj.com			
26 27 28	No	Ref.		similar	on Ju			
29 30	Frequent Participation in Sports			techno	ne 10,			
31 32	Yes	0.913	0.591-1.394	0.678 ologies	2025 at			
33 34 35	No	Ref.		r.	Ageno			
36 37	History of Ankle Sprains				ce Bibli			
38 39 40	Yes	1.158	0.769-1.737	0.481	iograph			
41 42 43	For peer review only	- http://bmjopei	n.bmj.com/site/about/guide	lines.xhtml	ique de l			
44 45 46			39					

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1					n-2024- yright, i		
3 4	No	Ref.			087402		
5 6 7	Unfixed Tender Points Around the				on 3 Ang for u		
7 8 9	Ankle Joint				,pril 20 Enseig Ises re		
10 11	With	0.799	0.467-1.331	0.400	anemer 25. Dov	0.322-1.173	0.152
12 13 14	Without	Ref.			o text a		
15 16	Unclear	0.513	0.292-0.868	0.016	ed fron dation	0.326-1.138	0.13
17 18 10	Severity of Ankle Injury				n http:/ ABES) a minir		
20 21	Very severe, unable to walk	0.679	0.194-1.855	0.491	//bmjop ng, Al ti		
22 23	Moderately severe, pain with pressure	0.791	0.400-1.466	0.477	ven.bm raining		
24 25 26	Not very severe, slight pain with pressure	Ref.			j.com/ , and s		
27 28	Cartilage Injury Of The Talus				on Jun imilar t		
29 30	With	2.586	1.039-6.369	0.037	ie 10, 2	1.991-15.813	0.001
31 32 33	Without	Ref.			log 25 Ref.		
34 35	Unclear	0.556	0.355-0.860	0.009	A gence	0.572-1.623	0.896
36 37 28	Recovered from Ankle Injury				e Biblic		
39 40 ———	Yes	2.066	1.071-4.400	0.042	graphi	0.910-4.275	0.104
41 42					ique de		
43 44 45	For peer review only	y - http://b	mjopen.bmj.com/site/about/gu 40	uidelines.xhtm	nl —		
46							



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1 2 3 4 5 6 7	Table 3. Model Pat	h Coefficients	ight, including for u	P> z
8	Knowledge <-		Enses r	
9 10 11		Job	elagnema 1ged	0.002
12 13		Income	-0.avnloa	0.137
14 15		Medical insurance	and ded f	0.019
16 17 18		Frequent participation in sports	data 0.2011 0.2011	0.459
19 20		History of ankle sprains?	1. 68 .	0.009
20 21 22 23		Unfixed tender points around the ankle joint	Al trấn 0.24nii	0.321
23 24 25		Cartilage injury of the talus	-0.mg	0.001
26 27	Attitude <		d simil	
28 29 20		Knowledge	ar & 10 0.08ch	0.032
30 31		Job	-0.80	0.302
32 33 34		Age	-0.02 g	0.256
35 36		Gender	-1.81 E	0
37 38 39		Edu	0.18 0.18	0.527
40 41 42 43 44 45 46		For peer review only - http://bmjopen.bmj.com/site 42	?/about/guidelines.xhtml	

1			BMJ Open	/bmjopen-20 1 by copyrigh		Pa
2 3 4 5 6	Practice <-	Smoking		24-087402 on 3 ht, in <u>cTu</u> ding fo 0.	0.654	
7 8		Knowledge		April 2 Ense 0.35 I	0	
9 10 11		Attitude		025. Do related	0	
12 13		income		-0.ent -0.ext -0.ext	0.752	
14 15 16		Medical insurance		and 1.06 da	0.045	
17 18		Unfixed tender points around the ankle joint		-0.atatinin	0.087	
19 20		Cartilage injury of the talus		-099 A	0.386	
21 22 23		Gender		open.br trainin	0.073	
24 25		Smoking		0. Land	0.669	
26 27 28		Drink		-0. s s: 7 on Ju	0.539	
28 29 30		Recovered from ankle injury		1.36chn	0.025	
31 32				2025 a ologie		
33 34				ıt Ageı s.		
35 36				nce E		
37				Bibli		
38				ogr		
39 40				aph		
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Table S1. Knowledge Dimension, %	24-087402 o nt, including			
Items	n 3 Ap for us		No/	
	ril 202 Inseig es rel	Yes/Correc	Incorrec	Unclear
	5. Downlo nement Su ated to tex	t	t	
K1. Do you have a good understanding of Osteochondral Lesions of the Talus?	aded f Iperieu It and o	23.46	76.54	
K2. Calcaneal cartilage is a transparent tissue located on the surface of the ankle joint. It has a smooth	rom http: ır (ABES) data∰ninii			
elastic surface, which can reduce friction and impact between the bones at both ends of the ankle jo	omt, bini	44.88	5.03	50.09
providing protection for the ankle joint.	pen.bmj. training,			
K3. Calcaneal cartilage injury refers to damage or fracture of the cartilage occurring at the top of the in	nger m	40.04	5 40	51 56
ankle joint.	on June imilar t	40.04	5.40	54.50
K4. The main symptoms of Osteochondral Lesions of the Talus include joint pain and swelling.	e 10, 202 echnolo	45.81	5.77	48.42
K5. Ankle sprains or improper jumping and landing can often lead to Osteochondral Lesions of the Tal	25 at Ag giegg	48.23	5.21	46.55
K6. High arches are more susceptible to Osteochondral Lesions of the Talus than flat feet.	yence B	31.84	16.57	51.58
K7. Calcaneal cartilage can regenerate.	ibliogr	21.79	17.32	60.89
	aphique			
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1 2	en-2024-0 pyright, in			
3 4 5	K8. The calcaneus and the distal ends of the tibia and fibula together form the ankle joint, which is the of	39 11	5 59	55 31
6 7 8	largest weight-bearing joint in the human body.	57.11	0.09	00.01
9 10	K9. Calcaneal cartilage injury is one of the main causes of chronic ankle pain.	40.97	5.96	53.07
11 12 13	K10. Clinical manifestations of Osteochondral Lesions of the Talus often include pain in the ankle joint at the angle of the talus often include pain in the ankle joint at the angle of the talus often include pain in the angle of the talus of tal	40.60	8 38	51.02
14 15	after weight-bearing and exercise, which can be relieved by rest.	-0.00	0.50	51.02
16 17 18	K11. Osteochondral Lesions of the Talus are relatively easy to heal, and symptoms do not recur.	22.53	21.97	55.49
19 20 21	K12. In case of emergency treatment for cartilage injury, it is recommended to rest, apply cold compress	16 02	5 21	17 86
22 23	(ice), immobilize with a plaster or splint, and elevate the affected limb (RICE principle).	-0.75	5.21	47.00
24 25 26	K13. More severe Osteochondral Lesions of the Talus may require ankle fusion or ankle replacement	20.20	5.02	55 69
27 28	surgery.	37.29	5.05	55.08
29 30 31	K14. Osteochondral Lesions of the Talus are often overlooked at the onset of ankle sprains. After resting	<i>A</i> 1 71	1 81	53 / 5
32 33 34	for a period and resuming activities, pain or swelling may recur.	71./1	4.04	55.45
35 36	jence B			
37 38 39	ibliogra gra			
40 41	phique ue			
42 43 44	For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml			
45 46				

able 52. Attitude Dimension, 76	~ .		02 on 3			
	Strongly	5	April Ens		Strongly	
Items	Agree	Agree	e Sutral	Disagree	Disagree	
A1. I consider ankle sprains to be minor injuries, so I don't pay much	7.26	7.82	Downloa Bath Sup	36.69	19.74	
attention to them.		2	ided fr perieu			
A2. I believe that Osteochondral Lesions of the Talus can heal on their	5.03	13.59	r (ABES) 7.62	30.17	13.59	
own.		ų,	/bmjo			
A3. I think that after an ankle injury, self-medication can accelerate		2	pen.br			
recovery, and there is no need to go to the hospital.	4.84	8.01	131.47	36.87	18.81	
A4. I believe that after an ankle injury, massage can improve blood	11.17	24.21	n June 2.77	21.04	10.80	
circulation.			10, 20			
A5. I think that the cost of examinations like magnetic resonance imaging	12.66	22.91	25 at Agg 9.85	15.08	9.50	
(MRI) for Osteochondral Lesions of the Talus is too expensive.			ence			

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1 2 3 4 5 6	A6. I think that surgery for Osteochondral Lesions of the Talus carries too	5.40	17.50	-2024-087402 671 21 right, including fo	16.01	9.87
7 8 9	much risk, and conservative treatment is better.A7. Minimally invasive arthroscopic treatment has minimal trauma and			3 April 202 Enseig r uses rel		
10 11 12 13	low risk, and I am more accepting of it.	9.31	29.05	nement Subscription	9.50	6.89
14 15 16	A8. I believe that ankle sprains should not be taken lightly, and it is			aded fror uperieur (
17 18 19	necessary to go to the hospital to check for possible Osteochondral Lesions of the Talus	15.27	30.54	a mining,	8.19	6.89
20 21 22 23 24	A9. I am willing to have a comprehensive understanding of the emergency	16.95	32.59	njopen.bm Al training,	7.45	6.15
25 26 27	treatment and daily management of Osteochondral Lesions of the Talus.	-n		com/ on and sim		
27 28 29 30 31 32 33			h	June 10, 2025 at <i>i</i> ilar technologies.		
34 35 36 37				Agence Bib		
38 39 40				liographiq		
41 42 43 44	For peer review only - http://bmjopen.bmj.com	m/site/about/g	uidelines.xhtm	ue de l		

	Always/Strongly		for	ນ ວ ສ ພ	Novon/Strongly	
Items	Always/Stroligly Agree	Often/Agree	Sometimes/Neutral se	Barely/Disagree	Disagree	
P1. I will proactively learn about	7 82	7 45	32 77		18.62	
Osteochondral Lesions of the Talus.	1.02	7.10	t and di	aded fr	10.02	
P2. After an ankle injury, I will go to the			ata mini			
hospital to check if there is damage to the	12.66	8.57	30.54 №	31.28	16.95	
calcaneal cartilage.			raining	ben bm		
P3. I will try to rest as much as possible to			and si			
reduce the burden on the ankle and lower the	18.81	20.30	28.86 milar te	20.86	11.17	
chances of injuring the calcaneal cartilage.			chnolog	10 202		
P4. I will engage in non-weight-bearing			gies.	57 ay A Doo		
exercises as recommended by the doctor after	16.01	13.78	27.93	22.53	19.74	
an injury, such as cycling or swimming.				bliogr		

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2 3 4 5 5 7	P5. I will choose a treatment plan based on medical advice.	32.22	24.39	21.79	, including for us	8.01
8 9 10 11 12 13	P6. I would consider minimally invasive surgery as a treatment option.	11.55	19.93	52.89	ril 2025. 9.87 Inseignement S ses related to te	5.77
14 15 16 17 18					aded from http uperieur (ABES tt and data min	
19 20 21 22 23					://bmjopen.bm 5) . ing, Al training	
24 25 26 27 28					, and similar te	
29 30 31 32 33 34					10, 2025 at Ag chnologies.	
35 36 37 38 39					ence Bibliogra	
40 41 42 43 44	For pe	er review only - http://bmj	open.bmj.com/site/al	bout/guidelines.xhtm	phique de l	
45						

Knowledge 1 Attitude 0.076 (0.077) 1 Practice 0.382 (<0.001) 0.220 (<0.001) 1		Knowledge	Attitude	Practice
Attitude 0.076 (0.077) 1 Practice 0.382 (<0.001) 0.220 (<0.001) 1	Knowledge	1		
Practice 0.382 (<0.001) 0.220 (<0.001) 1	Attitude	0.076 (0.077)	1	
for beet teriew only	Practice	0.382 (<0.001)	0.220 (<0.001)	1

Table S4. Pearson's Correlation Analysis

Table S5. Model Fit Indices

Model 1	Ref.	Measured results
RMSEA	<0.08 good	0.044
SRMR	<0.08 good	0.022
TLI	>0.8 good	0.772
CFI	>0.8 good	0.897

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Knowledge, attitude, and practice of patients with ankle injury regarding osteochondral lesions of the talus: a crosssectional study in Wuxi, China

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Knowledge, attitude, and practice of patients with ankle injury regarding osteochondral lesions of the talus: a cross-sectional study in Wuxi, China

Running title: KAP of OLT among patients

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Abstract

Objective: To investigate knowledge, attitude, and practice (KAP) of patients with ankle injury regarding osteochondral lesions of the talus (OLT).

Design: A cross-sectional study.

Setting: Between March and September 2023, at the Ninth People's Hospital of Wuxi, Affiliated with Soochow University.

Participants: Among patients with OLT.

Primary and secondary outcome measures: KAP scores and associated factors.

Methods: Data were collected through a researchers-designed, validated questionnaire with four dimensions (sociodemographic characteristics, knowledge, attitude, and practice). Structural equation modeling (SEM) was applied to explore associations among variables.

Results: A total of 537 valid (valid rate: 78.85%) questionnaires were obtained from the responders who aged 27.18 ± 11.01 years, with 151 (28.12) males. The mean KAP scores were 17.28 ± 4.84 (possible range: 0-28), 29.44 ± 4.21 (possible range: 9-45), and 18.01 ± 5.39 (possible range: 6-30), respectively. Structural equation modeling revealed that employment (employed vs. unemployed, $\beta = 1.33$, P = 0.002), had medical insurance ($\beta = 1.19$, P = 0.019), and with a history of ankle sprains ($\beta = 1.08$, P = 0.009) exhibited positively direct effects, while whether with cartilage injury of the talus (no vs. yes, $\beta = -0.73$, P = 0.001) had negatively direct effects on knowledge. Additionally, knowledge ($\beta = 0.08$, P = 0.032) showed positively direct effects on attitude. Furthermore, knowledge ($\beta = 0.38$, P < 0.001), attitude ($\beta = 0.18$, P < 0.001), had medical insurance ($\beta = 1.05$, P = 0.045), and had recovered from ankle injury ($\beta = 1.38$, P = 0.025) exhibited positively direct effects on practice.

Conclusion: Patients with ankle injury had inadequate knowledge, negative attitude and inactive practice toward OLT. Gender, job, medical insurance, cartilage injury of the talus,

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history of ankle sprains, and recovery from ankle injury influenced their KAP.

Keywords: knowledge; attitude; practice; patients with ankle injury; calcaneal cartilage injury; cross-sectional study

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Strengths and limitations of this study

- Large sample size: The study collected 3166 valid questionnaires, ensuring robust statistical analysis.
- High reliability: The questionnaire demonstrated high internal consistency with a Cronbach's α coefficient of 0.823.
- Cross-sectional design: The cross-sectional design does not establish causal relationships.
- Self-reported data: Reliance on self-reported responses in the questionnaires may introduce response bias or inaccuracies, affecting the reliability of the results.
- Single-center study: The study was conducted in a single center, limiting its generalizability.

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Introduction

Osteochondral lesions of the talus (OLT), recognized as an increasingly common injury, are one of the major challenges in orthopedic surgery, often resulting from acute ankle trauma [1, 2]. These lesions involve the articular cartilage of the talus and associated subchondral bone, and they occur in up to 73% of all ankle fractures, 50% of ankle sprains, and 41% of ankles with lateral instability [3, 4]. The talus's small articular surface, combined with its exposure to high loads, makes it particularly susceptible to such degenerative lesions [5]. These injuries, characterized by cartilage degeneration, lead to joint pain and destruction, presenting a significant hurdle in orthopedic care [6]. Additionally, OLT remain a common and challenging issue in the field, often encountered in the context of ankle injuries, particularly in sports medicine [7, 8]. Effective management and treatment strategies for these lesions are vital in providing the best possible care and outcomes for patients with OLT.

A Knowledge, Attitude, and Practice (KAP) survey is a valuable tool for assessing patients' understanding, beliefs, and behaviors regarding health conditions [9-11]. Given that OLT can result in significant discomfort and negatively impact quality of life, understanding patients' KAP is critical for improving clinical communication, addressing misconceptions, and refining treatment strategies [12].

However, limited studies have explored patients' KAP regarding OLT, leaving a gap in understanding how knowledge and attitudes influence their behaviors toward diagnosis and treatment. This study aimed to investigate KAP of patients with ankle injury regarding OLT and identify factors influencing these dimensions.

Materials and Methods

Study design and participants

This cross-sectional study adhered to the STROBE guidelines, and was conducted between March and September 2023 at the Ninth People's Hospital of Wuxi, Affiliated with Soochow University towards patients of OLT. The inclusion criteria were patients with ankle injury who visited for treatment. The exclusion criteria included individuals with cognitive impairments, language barriers that precluded questionnaire completion, or those providing incomplete demographic or medical information. This study was approved by the Ethic Committee of the Ninth People's Hospital of Wuxi, Soochow University (KS2023070), and all participants provided written informed consent.

Questionnaire

The design of the questionnaire was created by the research team following a comprehensive review of relevant literature pertaining to OLT. The questionnaire was evaluated and revised according to feedbacks from a panel of orthopedic specialists and public health researchers before being pilot-tested among 50 patients. A final Cronbach's α coefficient of 0.823 was obtained from reliability analysis based on the pilot-tested, which confirmed that the questionnaire had strong internal consistency. The final questionnaire, which was administered in Chinese, encompassed data collection across four distinct dimensions, comprising a total of 49 items. The "Sociodemographic characteristics" dimension, which included 19 items, gathered data on various aspects such as age, gender, height, body mass index (BMI), education, ethnicity, employment, monthly per capita income, smoking status, alcohol consumption, and medical insurance [defined as whether participants had active health insurance at the time of the survey (yes/no)]. Data on history of ankle sprains, referred to any previous incidents of ankle sprains, regardless of recovery status. Recovered from ankle injury referred to asking about whether the participants were recovered from ankle

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injury, which was defined as reporting full functional recovery following an ankle injury. Unfixed tender points around the ankle joint, were described as inconsistent or variable pain and tenderness around the ankle joint without a fixed point of discomfort. Additionally, information was collected on the severity of ankle injuries, and the presence of underlying or chronic diseases. The "Knowledge Dimension," consisting of 14 items, evaluated respondents' knowledge with all items having correct answers, where each correct response earned 2 points, unclear answers received 1 point, and incorrect answers received 0 points, resulting in a potential score range of 0 to 28 points. The "Attitude Dimension," comprising 9 items, primarily utilized a five-point Likert scale, where items 7, 8, and 9 had specific scoring values assigned to each response option. Items 1 to 6 had reversed scoring. The potential score range for the attitude dimension ranged from 9 to 45 points. The "Practice Dimension," which consisted of 6 items, utilized a five-point Likert scale, with item 8 having reversed scoring, and the potential score range for the practice dimension was 6 to 30 points. Attaining scores above 70% of the maximum in each section indicated adequate knowledge, positive attitude, and proactive practice [13].

Questionnaire distribution and quality control

The questionnaires were administered to study participants through WeChat and in the clinical setting. This process involved four dedicated research assistants who played pivotal roles in the distribution and collection of the questionnaires. To ensure the smooth execution of these tasks, the research assistants underwent training in small, face-to-face meetings, which encompassed a brief orientation to the subject matter of OLT, as well as comprehensive instruction on the proper procedures for questionnaire distribution and collection. Regular monthly meetings were convened to review the survey's progress and promptly address any emerging issues. The sampling strategy entailed convenience sampling of patients during their clinic visits and subsequent follow-up appointments. Initially, the

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sampling pool comprised around patients who met the specified research criteria, although those with inaccurate contact information were subsequently excluded despite efforts to rectify this through communication. Contact information and options for follow-up, including phone numbers, email addresses, and clinic appointments, were thoughtfully provided to participants to facilitate communication and address any concerns in the later stages of the study. During data cleansing, respondents who completed the questionnaire in less than 90 seconds, those who omitted essential demographic information such as age and height, and individuals who were unwilling to disclose their other medical conditions, were regard as invalid questionnaire.

Sample size calculation:

Sample size was calculated using the formula for cross-sectional studies: $\alpha=0.05$, $\mathbf{n} = \left(\frac{\mathbf{z}_{1-\alpha/2}}{\delta}\right)^2 \times \mathbf{p} \times (1-\mathbf{p})$ where $\mathbf{Z}_{1-\alpha/2}=1.96$ when $\alpha=0.05$, the assumed degree of variability of p=0.5 maximises the required sample size, and δ is admissible error (which was 5% here). The theoretical sample size was 480 which includes an extra 20% to allow for subjects lost during the study. Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies

Statistical analysis

Statistical analysis was conducted using R 4.3.1 software. Continuous variables were described using mean \pm standard deviation (SD), and between-group comparisons were performed using t-tests or analysis of variance (ANOVA). Categorical variables were presented as n (%). Pearson correlation analysis was employed to assess the correlations among KAP scores. Demographic characteristics with statistical differences (P<0.05) in KAP scores among different classifications were included in the path analysis of structural equation modeling (SEM). Additionally, in multivariate analysis, 70% of the maximum possible score was used as the cut-off value. Variables in univariate logistic regression

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analysis with P<0.05 were enrolled in multivariate logistic regression analysis. Two-sided P<0.05 were considered statistically significant in this study.

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Results

Initially, a total of 648 guestionnaires were collected. After data cleaning, the following questionnaires were excluded: 1) 58 questionnaires with response time less than 90 seconds; 3) 48 questionnaires with logical errors, such as abnormal age, height and weight value, and for multiple choice questions, such as "Do you have any underlying or chronic medical conditions?", while selecting" none "and any other disease option; 4) 5 questionnaires under 18 years old. Finally, 537 valid (valid rate: 82.87%) questionnaires remained. Respondents' average age was 27.18 ± 11.01 years, with 151 (28.12) males. Their mean KAP scores were 17.28 ± 4.84 (possible range: 0 - 28), 29.44 ± 4.21 (possible range: 9-45), and 18.01 ± 5.39 (possible range: 6-30), respectively (Table 1). Moreover, the knowledge and practice scores varied from patients with medical insurance states (P = 0.005 and P = 0.033), history of ankle sprains (P = 0.026 and P = 0.001), with unfixed tender points around the ankle joint (P =0.020 and P = 0.002), with an injury to the calcaneal cartilage (both P < 0.001), and whether recovered (P = 0.025 and P = 0.005). Meanwhile, the knowledge score varied from patients with different employment (P < 0.001), monthly per capita income (P < 0.001), alcohol consumption (P = 0.047). Attitude scores were more likely to differ by gender (P < 0.001). Practice score were differed by gender (P = 0.010), education (P = 0.028), employment (P = 0.028) 0.033), monthly per capita income (P < 0.001), and smoking states (P = 0.028) (Table S1). The distribution of knowledge dimensions revealed that the question with the highest number

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of participants choosing the "Correct" option (K5: "Understanding that OLT requires early medical intervention to prevent progression") was 48.23%. On the contrary, the question with the highest number of participants choosing the "Unclear" option (K7: "Awareness of the potential for cartilage regeneration in OLT") was 60.89% (**Table S2**). Regarding attitudes, a significant portion (56.43%) of respondents recognized the significance of ankle sprains, emphasizing that they should not be taken lightly (A1). Acceptance of minimally invasive

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arthroscopic treatment was shown by a 38.36% of respondents, perceiving it as having minimal trauma and low risk (A7). Nearly half (45.81%) strongly agreed or agreed that it is necessary to visit the hospital for potential OLT after an ankle sprain (A8). A substantial majority (49.54%) expressed their willingness to gain a comprehensive understanding of the emergency treatment and daily management of OLT (A9) (**Table S3**). Participants demonstrated varied behavioral practices, 39.11% of the participants mentioned prioritizing rest to alleviate strain on the ankle and reduce the risk of calcaneal cartilage injury (P3). A substantial 56.61% of respondents reported their inclination to base their treatment decisions on medical advice (P5). Interestingly, 31.48% of participants expressed their openness to considering minimally invasive surgery as a treatment option (P6), while only 5.77% stated they would never consider it (**Table S4**).

Pearson's correlation analysis showed that the correlation between knowledge and attitude (r = 0.076, P = 0.077) was not statistically significant. While, significant positive correlations were observed between knowledge and practice (r = 0.382, P < 0.001) and between attitude and practice (r = 0.220, P < 0.001) (**Table S5**). The SEM analysis indicated a highly favorable model fit, affirming a well-fitting model (**Table S6**). It revealed that employment (employed vs. unemployed, $\beta = 1.33$, P = 0.002), had medical insurance ($\beta = 1.19$, P = 0.019), and with a history of ankle sprains ($\beta = 1.08$, P = 0.009) exhibited positively direct effects, while whether with cartilage injury of the talus (no vs. yes, $\beta = -0.73$, P = 0.001) had negatively direct effects on knowledge. Additionally, knowledge ($\beta = 0.08$, P = 0.032) showed negatively direct effects on attitude. Furthermore, knowledge ($\beta = 0.38$, P < 0.001), attitude ($\beta = 0.18$, P < 0.001), had medical insurance ($\beta = 1.05$, P = 0.045), and had recovered from ankle injury ($\beta = 1.38$, P = 0.025) exhibited positively direct effects on practice (**Table 2** and **Figure 1**). In addition, multivariate logistic regression showed that employed (OR = 1.667,

 95% CI: 1.100-2.528, P = 0.016), history of ankle sprains (OR = 1.603, 95% CI: 1.057-2.434, P = 0.026), and with unfixed tender points around the ankle joint (OR = 1.713, 95% CI: 1.009-2.911, P = 0.046) were independently associated with knowledge (Table S7 and Table **3**). Knowledge (OR = 1.050, 95% CI: 1.007-1.094, P = 0.022) and age (OR = 0.974, 95% CI: 0.947-0.999, P = 0.048) were independently associated with attitude (Table S7 and Table 4). Furthermore, knowledge (OR = 1.114, 95% CI: 1.060-1.171, P < 0.001), attitude (OR = 1.114, 1), κ. .re indepenα. 95% CI: 1.085-1.209, P < 0.001), and with cartilage injury of the talus (OR = 5.584, 95% CI: 1.991-15.813, P = 0.001) were independently associated with practice (Table S7 and Table

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This study highlights that patients with ankle injury demonstrated limited knowledge, negative attitudes, and insufficient proactive behaviors toward OLT. These findings suggest that addressing knowledge deficits and misconceptions is crucial for improving patient outcomes. To our knowledge, this is the first study to comprehensively explore the interrelationship between KAP of patients with ankle injury toward OLT and associated influencing factors using structural equation modeling (SEM). This study suggests our findings support implementing educational programs to improve patient knowledge, addressing misconceptions, and encouraging early intervention and active participation in treatment.

Our study highlights that prior ankle injuries and exposure to related conditions were associated with higher knowledge levels. However, misconceptions about the regenerative capacity of cartilage and the perceived insignificance of ankle sprains remain prevalent. Tailored educational initiatives addressing these gaps could enhance patient understanding and early intervention [14]. Moreover, efforts should focus on dispelling misconceptions and fostering more positive attitudes toward treatment and rehabilitation [15]. Additionally, ensuring access to adequate medical insurance coverage can mitigate financial barriers that might otherwise hinder patients' access to necessary care [16-18].

Our findings highlight several key factors that influenced patient outcomes, including employment status, history of ankle sprains, presence of cartilage injury, and medical insurance coverage. Specifically, employed patients showed better knowledge scores, those with prior ankle sprains demonstrated higher awareness, while patients with cartilage injury had different practice patterns. Additionally, patients with medical insurance (defined as having active health insurance coverage, versus paying out-of-pocket) showed more proactive behaviors in seeking care. Key factors such as employment, financial status, and

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prior injury history were found to influence patients' knowledge, attitudes, and practices. Previous studies have also highlighted the impact of BMI, age, lesion size, and anatomical location on patient-reported outcomes and quality of life in symptomatic OLT cases [19]. Notably, patients with medical insurance demonstrated more proactive behaviors, underscoring the importance of addressing financial barriers to ensure equitable access to care. These results emphasize the importance of tailoring patient education and awareness campaigns to specific demographic and health-related factors to bridge the knowledge gap [14, 20]. The association between medical insurance coverage and practice scores underlines the significance of ensuring financial accessibility to medical care for patients [21, 22]. This study adds to the literature by identifying specific misconceptions and uncertainties regarding OLT among patients. For example, patients often underestimated the chronic nature of the condition or delayed seeking professional care. While some respondents demonstrated a basic awareness of the term "OLT," the specific details regarding the location, function, symptoms, and treatment of OLT were less clear to many. Several misconceptions and uncertainties were evident, such as the misconception that calcaneal cartilage can regenerate and the underestimation of the chronic nature of these injuries. This limited knowledge underscores the need for comprehensive patient education initiatives, emphasizing accurate information about OLT, their management, and potential long-term consequences [16, 23, 24]. Ensuring that patients have a correct understanding of this topic is essential for improving clinical practice, enabling early recognition, prompt intervention, and better long-term outcomes for patients with OLT [25, 26].

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Attitudes toward OLT were influenced by demographic factors, with certain groups more likely to perceive ankle injuries as minor and self-healing. Such perceptions may delay necessary interventions. Encouraging evidence-based treatment choices and addressing these attitudes through patient education is essential for improving clinical outcomes. For example,

 a significant proportion of respondents consider ankle sprains as minor injuries, potentially leading to a lack of attention and delayed intervention when OLT are associated with such sprains. The belief that OLT can heal on their own and that self-medication can expedite recovery might discourage patients from seeking professional medical care promptly. On the positive side, a considerable number of respondents seem to be open to minimally invasive arthroscopic treatment, indicating potential acceptability of this approach in clinical practice. These findings underscore the importance of addressing and redirecting potentially detrimental attitudes through patient education and awareness campaigns. Encouraging a more informed, proactive, and open-minded approach to OLT is essential for improving clinical practice and ultimately patient outcomes [27-29].

Patient practices revealed room for improvement, particularly in seeking timely medical care and adhering to professional treatment advice. While intentions to learn about OLT were evident, translating these intentions into effective actions remains a challenge. Educational efforts should focus on bridging this gap to foster evidence-based management practices. Notably, there is room for improvement in several areas to enhance clinical practice. While a substantial percentage of respondents express their intention to proactively learn about OLT, it is crucial to ensure that these intentions translate into informed actions [30, 31]. Going to the hospital for a check after an ankle injury is a positive practice, but more patients could adopt this approach. However, there is still room for improvement, especially in ensuring that patients choose treatment plans based on medical advice. Overall, these results emphasize the need for patient education that fosters informed decision-making, promotes best practices in the management of OLT, and encourages patients to follow medical recommendations, ultimately contributing to improved clinical outcomes [32, 33].

The observed associations between knowledge, attitudes, and practices reaffirm the interconnected nature of these dimensions. Enhancing patient knowledge may lead to
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improved perceptions and more proactive behaviors, which are critical for effective management of OLT. Our findings further suggest that interventions addressing knowledge gaps could have a cascading positive impact on attitudes and practices [34]. Similarly, the correlation between attitude and practice highlights the interconnected nature of these aspects. The SEM analysis reveals that employment, medical insurance, a history of ankle sprains, and the presence of a calcaneal cartilage injury directly impact knowledge. Moreover, knowledge and gender directly affect attitude, and knowledge, attitude, medical insurance, and recovered from ankle injury directly influence practice. These understanding can inform tailored interventions aimed at enhancing clinical practice by addressing these influential factors and fostering more informed, positive, and proactive patient engagement in the management of OLT [35, 36].

This study had limitations, including its single-center, regional focus, potentially limiting the generalizability of findings; the cross-sectional design's inability to establish causality or track changes over time; reliance on self-administered questionnaires, which may introduce response bias and interpretation inaccuracies; the possibility of social desirability bias in participant responses; limited demographic information, hindering the exploration of influential factors; the complexity of interpreting Structural Equation Modeling results; and the absence of long-term follow-up, which could provide insights into changes in patients' KAP.

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In conclusion, this study identifies significant gaps in knowledge, attitudes, and practices related to OLT. By highlighting the role of demographic and clinical factors, such as prior injury history and medical insurance, this study underscores the need for targeted interventions to address misconceptions, improve patient education, and promote timely care. Knowledge, attitude, gender, employment, medical insurance, cartilage injury of the talus, history of ankle sprains, and recovered from ankle injury might have effect on their KAP. To

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improve patient outcomes and care in this context, targeted interventions are warranted. Healthcare providers should focus on increasing patients' knowledge about OLT, potentially through educational programs and materials. Moreover, efforts should be made to foster a more positive attitude among patients by addressing their concerns and misconceptions. Encouraging early intervention and active participation in treatment and rehabilitation should be a key objective. Lastly, it is crucial to emphasize the significance of medical insurance coverage for these injuries, ensuring that financial barriers do not hinder access to appropriate care.

Thi	s work has been carried out in accordance with the Declaration of Helsinki (2000) of the
Wo	orld Medical Association. This study was approved by the Ethic Committee of the Nine
Pec	ople's Hospital of Wuxi, Soochow University (KS2023070), and all participants provide
wri	tten informed consent.
Th	e Patient and Public Involvement statement
No	patient or public involved in this study.
Co	nsent for publication
No	t applicable
Av	ailability of data and materials
All	data generated or analyzed during this study are included in this article.
Co	mpeting interests
The	e authors declare that they have no competing interests.
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Au	thors' contributions
Xu	eming Chen and Chang She carried out the studies, participated in collecting data, a
dra	fted the manuscript. Xingfei Zhang and Wencheng Wang performed the statistical analys
and	l participated in its design. Xueming Chen and Yuxuan Zhang participated in acquisition
ana	lysis, or interpretation of data and draft the manuscript. All authors read and approved t

None.

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Table 1. KAP	scores
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	Total score	Possible range	Percentage, %
Knowledge	17.28 ± 4.84	0-28	61.71
Attitude	29.44 ± 4.21	9-45	65.42
Practice	18.01 ± 5.39	6-30	60.03

*Percentage = Total score/The maximum value of possible range $\times 100\%$.

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		Coef.	P> z
Knowledge <-			• •
-	Employment (Employed vs. Unemployed)	1.33	0.002
	Income (low vs. higher)	-0.22	0.137
	Medical insurance (with vs. without)	1.19	0.019
	Frequent participation in sports (with vs. without)	0.32	0.459
	History of ankle sprains (with vs. without)	1.08	0.009
	Unfixed tender points around the ankle joint (with vs. without)	0.26	0.321
	Cartilage injury of the talus (without vs. with)	-0.73	0.001
Attitude <	-		
	Knowledge	0.08	0.032
	Employment (Employed vs. Unemployed)	-0.40	0.302
	Age	-0.02	0.256
	Gender (male vs. female)	-1.81	0
	Education (higher vs. low)	0.18	0.527
	Smoking (never vs. yes)	0.13	0.654
ractice <	-		
	Knowledge	0.38	0
	Attitude	0.18	0
	Income (low vs. higher)	-0.05	0.752
	Medical insurance (with vs. without)	1.05	0.045
	Unfixed tender points around the ankle joint (with vs. without)	-0.46	0.087
	Cartilage injury of the talus (without vs. with)	-0.20	0.386
	Gender (male vs. female)		0.073
	Smoking (never vs. yes)	0.16	0.669
	Alcohol consumption (yes vs. never)	-0.17	0.539
	Recovered from ankle injury (yes vs. no)	1.38	0.025

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Dimension	Variables	Multiva	riate Analysis	
Dimension	variables	OR	95%CI	Р
Knowledge				
	Employment			
	Employed	1.667	1.100-2.528	0.016
	Unemployed	Ref.		
	Monthly Per Capita Income, Yuan			
	<2,000	Ref.		
	2,000-5,000	1.378	0.672-2.962	0.394
	5,000-10,000	1.734	0.814-3.849	0.163
	>10,000	1.338	0.567-3.224	0.509
	Prefer not to disclose	0.798	0.374-1.767	0.566
	Medical Insurance			
	Yes	1.578	0.933-2.753	0.097
	No	Ref.		
	Frequent Participation in Sports			
	Yes	1.343	0.881-2.040	0.168
	No	Ref.		
	History of Ankle Sprains			
	Yes	1.603	1.057-2.434	0.026
	No	Ref.		
	Unfixed Tender Points Around	the		
	Ankle Joint			
	With	1.713	1.009-2.911	0.046
	Without	Ref.		
	Unclear	1.097	0.633-1.880	0.737
	Cartilage Injury Of The Talus			
	Yes	0.793	0.283-2.099	0.646
	No	Ref.		
	Unclear	0.464	0.293-0.726	0.001

A 44.4 T	X7 • 11	Multiva	riate Analysis	
Attitude	Variables	OR	95%CI	Р
	Knowledge	1.050	1.007-1.094	0.02
	Age	0.974	0.947-0.999	0.04
	Gender			
	Male	0.625	0.368-1.041	0.07
	Female	Ref.		
	Education			
	Junior high school or below	Ref.		
	High school / Vocational school	1.400	0.620-3.185	0.41
	College / Bachelor's degree	1.134	0.537-2.480	0.74
	Master's degree and above	1 173	0 282-4 158	0.81
	Employment	111,0	0.202	0.01
	Employed	0.692	0 440-1 079	0.10
	Unemployed	Ref	0.110 1.079	0.10
	Smoking	1001.		
	Never smoked	Ref		
	Former smoker	1 387	0 704-2 681	0 33
	Current smoker	0.668	0 321-1 319	0.55
		0.000	0.521 1.51)	0.20

Practice	Variables	Multivariate Analysis		
		OR	95%CI	Р
	Knowledge	1.114	1.060-1.171	< 0.00
	Attitude	1.144	1.085-1.209	< 0.00
	Age			
	Gender			
	Male	0.583	0.297-1.107	0.107
	Female	Ref.		
	Monthly Per Capita Income, Yuan			
	<2,000	Ref.		
	2,000-5,000	1.438	0.599-3.790	0.436
	5,000-10,000	2.541	1.035-6.847	0.051
	>10.000	2.473	0.887-7.371	0.091
	Prefer not to disclose	1 208	0 491-3 240	0.692
	Smoking			
	Never smoked	Ref		
	Former smoker	0.698	0 231-1 898	0 498
	Current smoker	0.965	0 394-2 281	0.937
	Alcohol Consumption	0.902	0.371 2.201	0.957
	Never consumed alcohol	Ref		
	Former drinker	0 791	0 371-1 612	0 530
	Current drinker	0.643	0.337-1.190	0.550
	Medical Insurance	0.045	0.557 1.170	0.100
	Vec	1 /31	0 775-2 767	0.267
	No	I.4JI Rof	0.775-2.707	0.207
	Unfixed Tender Points Around the	KCI.		
	Ankle Joint			
	With	0.624	0 222 1 172	0 152
	Without	0.024 Dof	0.322-1.175	0.132
	Without Unalean	NCI.	0 226 1 129	0.12
	Unclean Serverity of Ambridge Information	0.018	0.320-1.138	0.15
	Severity of Ankle Injury			
	Very severe, unable to walk			
	Noderately severe, pain with pressure			
	Not very severe, slight pain with			
	pressure			
	Cartilage Injury Of The Talus	5 50 4	1 001 15 013	0.001
	With	5.584	1.991-15.813	0.001
	Without	Ref.	0.550 1.600	0.000
	Unclear	0.966	0.572-1.623	0.896
	Recovered from Ankle Injury			
	Yes	1.888	0.910-4.275	0.104
	No	Ref		

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Sociodemographic cha	aracteristics an Overall	d KAP scores Knowledge		Attitude	2 on (ing fo	Practice	
Variables	<u>N(%)</u>	Mean ± SD	Р	Mean ± SD		Mean ± SD	Р
Age	27.18 ± 11.01	17.28 ± 4.84		29.44 ± 4.21	es -	18.01 ± 5.39	
Gender			0.492				0.010
Male	151 (28.12)	16.88 ± 4.72		28.16 ± 4.08	ited	16.99 ± 5.72	
Female	386 (71.88)	17.44 ± 4.88		29.94 ± 4.15	l to	18.40 ± 5.21	
BMI, kg/m ²	22.21 ± 4.92				tex tex		
Education			0.530		0.475 ar be		0.028
Junior high school or below	84 (15.64)	16.56 ± 4.67		28.51 ± 4.15	ieu id fr	17.23 ± 5.09	
High school / Vocational school	74 (13.78)	17.36 ± 5.14		29.51 ± 4.32	r (A lata	17.51 ± 5.06	
College / Bachelor's degree	361 (67.23)	17.42 ± 4.82		29.65 ± 4.17		18.13 ± 5.51	
Master's degree and above	18 (3.35)	17.67 ± 4.88		29.17 ± 4.46	nin S)	21.17 ± 4.74	
Ethnicity			0.361		0.981 🖕 📓		0.089
Han ethnicity	460 (85.66)	17.37 ± 4.93		29.43 ± 4.25	vi tr	18.14 ± 5.46	
Ethnic minority	77 (14.34)	16.75 ± 4.25		29.47 ± 3.94	aini <mark>en.</mark>	17.19 ± 4.92	
Employment			<0.001		0.180 💆		0.033
Employed	202 (37.62)	18.24 ± 5.22		29.13 ± 4.22	an <mark>C</mark>	18.58 ± 5.13	
Unemployed	335 (62.38)	16.71 ± 4.50		29.62 ± 4.19	d si	17.66 ± 5.52	
Monthly Per Capita Income,			< 0.001		0.771 <u>n</u> <u>n</u>		< 0.001
Yuan					Jun ar t		
<2,000	59 (10.99)	16.54 ± 4.82		28.61 ± 4.09	e 1	16.29 ± 5.14	
2,000-5,000	158 (29.42)	17.44 ± 5.05		29.41 ± 3.66	0, 2 1110	18.15 ± 5.31	
5,000-10,000	107 (19.93)	18.75 ± 4.65		29.36 ± 4.37	025 log	19.78 ± 4.44	
>10,000	57 (10.61)	18.26 ± 5.19		29.56 ± 5.01	les.	19.18 ± 5.91	
Prefer not to disclose	156 (29.05)	16.04 ± 4.28		29.80 ± 4.33	Ag	16.87 ± 5.57	
Smoking			0.087		0.115 e		0.028
Never smoked	406 (75.61)	17.56 ± 4.84		29.63 ± 4.11	e B	18.34 ± 5.24	
Former smoker	55 (10.24)	16.67 ± 4.44		29.11 ± 4.41	ibli	16.44 ± 6.21	

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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Page 33 of 46				BMJ Open		/bmjope 1 by col		
$ \begin{array}{c} \mbox{Current smoker} & 76 (14.15) & 16.25 \pm 4.97 & 28.64 \pm 4.51 & 0.390 & 0.477 & 0.490 & 0.4$	1						en-20; oyrigh		
$ \begin{array}{c} \mbox{Current smoker} & 76 (14.15) & 16.25 \pm 4.97 & 28.64 \pm 4.51 & 0.300 \\ \mbox{Never consumed alcohol} & 311 (57.91) & 17.70 \pm 4.90 & 29.64 \pm 4.33 \\ \mbox{Never consumed alcohol} & 311 (57.91) & 17.70 \pm 4.90 & 29.64 \pm 4.33 \\ \mbox{Current drinker} & 811 (52.663) & 16.53 \pm 4.88 & 29.18 \pm 3.96 & 0.256 \\ \mbox{Metical Insurance} & 29 (79.89) & 17.56 \pm 4.92 & 29.52 \pm 4.14 \\ \mbox{Never consumed alcohol} & 108 (20.11) & 16.18 \pm 4.36 & 29.12 \pm 4.47 & 0.940 \\ \mbox{Never consumed alcohol} & 108 (20.11) & 16.18 \pm 4.36 & 29.12 \pm 4.47 & 0.940 \\ \mbox{Never consumed alcohol} & 18.37 \pm 5.34 & 16.56 \pm 5.40 & 0.057 & 0.940 \\ \mbox{Never consumed alcohol} & 108 (20.11) & 16.18 \pm 4.36 & 29.43 \pm 4.60 & 0.0459 \\ \mbox{Never consumed alcohol} & 337 (62.76) & 17.11 \pm 4.87 & 29.43 \pm 4.60 & 0.0459 \\ \mbox{Never consumed alcohol} & 337 (62.76) & 17.11 \pm 4.87 & 29.43 \pm 4.60 & 0.0459 \\ \mbox{Never consumed alcohol} & 337 (62.76) & 17.11 \pm 4.87 & 29.43 \pm 4.60 & 0.0459 \\ \mbox{Never consumed alcohol} & 337 (65.88 \pm 1.75 & 29.52 \pm 4.28 & 0.005 & 0.940 \\ \mbox{Never consumed alcohol} & 337 (65.88 \pm 1.75 & 29.52 \pm 4.28 & 0.933 \pm 4.34 & 0.506 & 0.026 & 0.930 \\ \mbox{Never consumed alcohol} & 318 (34.08) & 17.57 \pm 5.35 & 29.52 \pm 4.12 & 0.001 \\ \mbox{Never consumed alcohol} & 318 (34.08) & 17.57 \pm 5.35 & 0.026 & 29.33 \pm 4.34 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.021 & 0.506 & 0.022 & 0.506 & 0.021 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.021 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & 0.506 & 0.022 & $	2						24-0 1t, ir		
$ \begin{array}{c} \mbox{Current smoker} & 76 (14.15) & 16.25 \pm 4.97 & 28.64 \pm 4.51 & 0.390 \mbox{ or consumption} & 0.047 & 0.390 \mbox{ or consumption} & 0.391 (57.91) & 17.70 \pm 4.90 & 29.64 \pm 4.33 & 0.390 \mbox{ or consumption} & 0.256 \mbox{ or consumption} & 0.291 \mbox{ or consumption} & 0.291 \mbox{ or consumption} & 0.295 \mbox{ or consumption} & 0.256 or consumptio$	3						10874		
$ \begin{array}{c} \text{Current Sinoed} & \text{O}(14.13) & 10.23 \pm 4.37 & 22.04 \pm 4.31 & 0.390 \text{ gr}{s} & 17.34 \pm 3.40 & 0.006 \\ \text{Atcohol Consumption} & 0.047 & 0.390 \text{ gr}{s} & 17.34 \pm 3.40 & 0.106 \\ \text{Never consumed alcohol} & 311 (57.91) & 17.70 \pm 4.90 & 29.64 \pm 4.31 & \text{ss} \text{ms}^{\text{reg}}{s} & 17.35 \pm 5.23 & 0.003 \\ \text{Former drinker} & 143 (26.63) & 16.53 \pm 4.88 & 29.18 \pm 3.96 & 0.256 \text{ grapher}{s} & 17.36 \pm 5.58 & 0.003 \\ \text{Vers} & 229 (70.89) & 17.56 \pm 4.92 & 29.52 \pm 4.14 & \text{ss} \text{ss}^{\text{reg}}{s} & 17.36 \pm 5.34 & 16.56 \pm 5.40 & 18.37 \pm 5.34 & 16.56 \pm 5.40 & 18.37 \pm 5.34 & 16.56 \pm 5.40 & 18.37 \pm 5.34 & 16.56 \pm 5.40 & 18.01 \pm 5.76 & 18.00 \pm 5.17 & 0.337 & 0.459 & 0.033 & 0.792 & 0.940 & 0.459 & 0.034 & 18.00 \pm 5.17 & 0.420 & 0.200 & 0.940 & 0.506 & 0.034 & 18.01 \pm 5.76 & 18.00 \pm 5.17 & 0.420 & 0.026 & 0.506 & 0.506 & 0.034 & 17.57 \pm 5.35 & 29.52 \pm 4.28 & 17.90 \pm 5.15 & 0.026 & 0.506 & 0.034 & 17.90 \pm 5.15 & 0.026 & 0.200 & 0.000 & 0.034 & 18.52 \pm 5.38 & 0.002 & 0.0002 & 0.026 & 0.0506 & 0.034 & 18.52 \pm 5.38 & 0.002 & 0.0001 & 0.034 & 18.52 \pm 5.38 & 0.002 & 0.020 & 0.0001 & 0.002 & 0.0026 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0000 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0001 & 0.002 & 0.0000 & 0.0001 & 0.002 & 0.0000 & 0.0001 & 0.002 & 0.0000 $	4	Current amolear	76(1115)	16.25 ± 4.07		29 61 + 1 51	Idin	17.24 ± 5.40	
Altonic Consumption0.0470.0470.0470.05970.0210.05970.0210.05970.0210.05970.021	5	Alashal Consumption	70 (14.13)	10.23 ± 4.97	0.047	26.04 ± 4.31	o 200 ≢ 9	17.34 ± 3.40	0 106
$ \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	6 7	Alconol Consumption	211(57.01)	1770 + 400	0.047	20.(4 + 4.22)	0.390 ο ω	10 42 + 5 22	0.106
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	8	Never consumed alconol	311(57.91)	$1/./0 \pm 4.90$		29.04 ± 4.33	Jse En	18.43 ± 5.32	
$ \begin{array}{c} \text{Current armser} & 143 (26.5) & 16.33 \pm 4.88 & 29.18 \pm 3.96 & 17.56 \pm 3.28 \\ \text{Medical Insurance} & 0.005 & 0.256 & 0.256 & 0.003 \\ \text{Yes} & 429 (79.89) & 17.56 \pm 4.92 & 29.52 \pm 4.14 & 0.003 \\ \text{No} & 108 (20.11) & 16.18 \pm 4.36 & 29.12 \pm 4.47 & 0.940 \\ \text{Frequent Walking on Uneven} & 0.299 & 0.940 & 0.940 \\ \text{Yes} & 200 (37.24) & 17.58 \pm 4.78 & 29.43 \pm 4.60 & 18.01 \pm 5.76 \\ \text{Yes} & 200 (37.24) & 17.58 \pm 4.78 & 29.43 \pm 4.60 & 18.00 \pm 5.17 \\ \text{No} & 337 (62.76) & 7.11 \pm 4.87 & 29.45 \pm 3.96 & 18.00 \pm 5.17 \\ \text{No} & 354 (65.92) & 17.13 \pm 4.55 & 29.52 \pm 4.28 & 18.01 \pm 5.76 \\ \text{No} & 354 (65.92) & 17.13 \pm 4.55 & 29.40 \pm 4.17 & 0.5066 \\ \text{Yes} & 221 (41.15) & 17.88 \pm 4.88 & 29.33 \pm 4.34 & 17.90 \pm 5.15 & 0.026 & 0.200 \\ \text{Yes} & 221 (41.15) & 17.88 \pm 4.88 & 29.33 \pm 4.34 & 18.52 \pm 5.38 \\ \text{No} & 316 (58.85) & 16.86 \pm 4.78 & 29.52 \pm 4.12 & 0.200 \\ \text{With} & 108 (20.11) & 18.36 \pm 4.98 & 29.25 \pm 4.40 & 0.200 \\ \text{Without} & 300 (55.87) & 17.16 \pm 5.03 & 29.65 \pm 4.22 & 0.200 \\ \text{With} & 108 (20.11) & 18.36 \pm 4.98 & 29.25 \pm 4.40 & 18.75 \pm 5.51 \\ 10.76 \pm 5.30 & 0.021 & 0.020 & 0.020 \\ \text{With} & 108 (20.11) & 18.36 \pm 4.98 & 29.25 \pm 4.40 & 18.75 \pm 5.51 \\ 10.76 \pm 5.30 & 0.0440 \\ \text{Without} & 300 (55.87) & 17.16 \pm 5.03 & 29.65 \pm 4.22 & 0.200 \\ \text{With} & 108 (20.11) & 18.36 \pm 4.98 & 29.25 \pm 4.40 & 18.75 \pm 5.51 \\ 10.76 \pm 5.30 & 0.0440 \\ \text{Without} & 300 (55.87) & 17.16 \pm 5.03 & 29.65 \pm 4.22 & 0.200 \\ \text{With} & 108 (20.11) & 18.36 \pm 4.98 & 29.25 \pm 4.40 & 18.75 \pm 5.51 \\ 10.76 \pm 5.30 & 0.0440 \\ \text{Without} & 300 (55.87) & 17.16 \pm 5.03 & 29.65 \pm 4.22 & 0.741 \\ \text{Without} & 300 (55.87) & 17.16 \pm 5.03 & 29.65 \pm 4.22 & 0.741 \\ \text{Without} & 300 (55.87) & 17.46 \pm 6.2 & 29.48 \pm 4.98 & 0.741 \\ \text{With} & 19.04 \pm 4.81 & 18.33 \pm 4.81 & 19.04 \pm 4.81 \\ 19.04 \pm 4.81 & 19.04 \pm 4.81 & 19.04 \pm 4.81 \\ 19.04 \pm 4.81 & 19.04 \pm 4.81 & 19.04 \pm 4.81 \\ 17.90 \pm 5.50 & 19.55 & 0.448 & 19.55 & 0.448 & 19.55 & 0.448 & 19.55 & 0.448 & 11.55 & 0.448 & 11.55 & 0.55 & 0.448 & 11.55 & 0.55 & 0.448 & 11.55 & 0.55 & 0.448 & 11.55 & 0.55 & 0.55 & 0.55 & 0.55 & 0.5$	9	Former drinker	83 (15.46)	$1/.02 \pm 4.41$		29.14 ± 4.14	l 20 sei s re	$1/.52 \pm 5.23$	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	10	Current drinker	143 (26.63)	16.53 ± 4.88	0.005	29.18 ± 3.96	gne gne	$1/.36 \pm 5.58$	0.000
12Yes429 (7.89)17.56 ± 4.9229.52 ± 4.146 first of the state	11	Medical Insurance			0.005		0.256 8 8 0		0.003
13No108 (20.11)16.18 ± 4.36 29.12 ± 4.47 90.94016.56 ± 5.40 14Frequent Walking on Uneven Surfaces0.2990.9400.94016.56 ± 5.40 0.79215Frequent Participation in Sports0.337 (62.76)17.11 ± 4.87 29.43 ± 4.60 18.01 ± 5.76 18.00 ± 5.76 19Frequent Participation in Sports0.337 (62.76)17.11 ± 4.87 29.45 ± 3.96 0.45918.00 ± 5.76 21Yes183 (34.08)17.57 ± 5.35 29.52 ± 4.28 18.21 ± 5.84 0.42023History of Ankle Sprains0.0260.506 fig18.52 ± 5.38 18.52 ± 5.38 0.03424Yes221 (41.15)17.88 ± 4.88 29.33 ± 4.34 18.52 ± 5.38 18.52 ± 5.38 26Unfixed Tender Points0.0200.2000.0020.00237Without108 (20.11)18.36 ± 4.98 29.25 ± 4.40 0.741 gr38Moderately severe, unable to walk23 (4.28)16.04 ± 4.62 29.48 ± 4.98 0.741 gr39Without20 (55.87)17.16 ± 5.03 29.52 ± 4.23 0.741 gr18.75 ± 4.82 30Woderately severe, slight pain with pressure448 (83.43)17.44 ± 4.75 29.52 ± 4.23 0.741 gr18.33 ± 4.81 39For peer review only - http://bm/jopen.bm/.com/site/about/guidelines.xhtml17.90 ± 5.50	12	Yes	429 (79.89)	17.56 ± 4.92		29.52 ± 4.14	io ni vin	18.37 ± 5.34	
14 15Frequent Walking on Uneven Surfaces0.2990.940 0.940 0.940 0.940 0.940 0.940 0.940 0.940 	13	No	108 (20.11)	16.18 ± 4.36		29.12 ± 4.47	ext	16.56 ± 5.40	
15SurfacesConstrainedConstrainedConstrainedConstrained16Yes200 (37.24) 17.58 ± 4.78 29.43 ± 4.60 18.01 ± 5.76 17No337 (62.76) 17.11 ± 4.87 29.45 ± 3.96 18.01 ± 5.76 189 17.57 ± 5.35 29.52 ± 4.28 18.21 ± 5.84 17Yes $183 (34.08)$ 17.57 ± 5.35 29.52 ± 4.28 17.90 ± 5.15 21Yes $183 (34.08)$ 17.57 ± 5.35 29.40 ± 4.17 0.506 mm^2 23History of Ankle Sprains 0.026 0.506 mm^2 0.034 24Yes $221 (41.15)$ 17.88 ± 4.88 29.33 ± 4.34 17.64 ± 5.38 26No $316 (58.85)$ 16.86 ± 4.78 29.52 ± 4.12 17.64 ± 5.38 27Unfixed Tender Points 0.020 0.200 0.200 0.002 Around the Ankle Joint $108 (20.11)$ 18.36 ± 4.98 29.25 ± 4.40 18.52 ± 5.53 29Without $300 (55.87)$ 17.16 ± 5.03 29.65 ± 4.22 18.27 ± 5.55 20Unclear $129 (24.02)$ 16.67 ± 5.46 28.88 ± 3.80 19.04 ± 4.81 23Moderately severe, pain with pressure $66 (12.29)$ 16.67 ± 5.46 28.88 ± 3.80 17.90 ± 5.50 24Yey severe, slight pain with pressure $448 (83.43)$ 17.44 ± 4.75 29.52 ± 4.23 17.90 ± 5.50	14	Frequent Walking on Uneven			0 299		0.940 an eride		0 792
Ves200 (37.24) 17.58 ± 4.78 29.43 \pm 4.60Regr 18.01 ± 5.76 No337 (62.76) 17.11 ± 4.87 29.45 ± 3.96 18.01 ± 5.76 18.00 ± 5.17 Frequent Participation in0.3370.459 18.01 ± 5.76 18.01 ± 5.76 Sports 0.337 0.459 18.21 ± 5.84 17.90 ± 5.15 0.459 18.21 ± 5.84 Yes183 (34.08) 17.57 ± 5.35 29.52 ± 4.28 17.90 ± 5.15 0.034 History of Ankle Sprains 0.026 0.506 mm gr 17.64 ± 5.38 0.034 Yes221 (41.15) 17.88 ± 4.88 29.33 ± 4.34 17.64 ± 5.38 0.020 0.200 Unfixed Tender Points 0.020 0.200 0.200 0.002 With $108 (20.11)$ 18.36 ± 4.98 29.25 ± 4.40 18.75 ± 4.82 With $108 (20.11)$ 18.36 ± 4.98 29.25 ± 4.40 18.75 ± 4.82 Very severe, unable to walk $23 (4.28)$ 16.04 ± 4.62 29.48 ± 4.98 17.90 ± 5.50 Not very severe, slight pain with pressure $448 (83.43)$ 17.44 ± 4.75 29.52 ± 4.23 17.90 ± 5.50 17.90 ± 5.50	15	Surfaces			0.277		d eur		0.172
No337 (62.76) 17.11 ± 4.87 29.45 ± 3.96 18.00 ± 5.17 19Frequent Participation in Sports0.337 0.459 0.459 0.459 21Yes183 (34.08) 17.57 ± 5.35 29.52 ± 4.28 18.21 ± 5.84 22No354 (65.92) 17.13 ± 4.55 29.40 ± 4.17 17.90 ± 5.15 23History of Ankle Sprains 0.026 0.506 0.506 0.034 24Yes221 (41.15) 17.88 ± 4.88 29.33 ± 4.34 0.002 0.200 27Unfixed Tender Points 0.020 0.200 0.200 0.002 38Around the Ankle Joint 0.020 0.200 0.200 0.002 With108 (20.11) 18.36 ± 4.98 29.25 ± 4.40 18.75 ± 4.82 39Without 300 (55.87) 17.16 ± 5.03 0.741 0.741 30Severity of Ankle Injury 0.323 0.741 0.944 34Moderately severe, pain with pressure $66 (12.29)$ 16.67 ± 5.46 28.88 ± 3.80 19.04 ± 4.81 38Moderately severe, slight pain with pressure $448 (83.43)$ 17.44 ± 4.75 29.52 ± 4.23 17.90 ± 5.50 39For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 17.90 ± 5.50	10 17	Yes	200 (37.24)	17.58 ± 4.78		29.43 ± 4.60	ata	18.01 ± 5.76	
FrequentParticipation in Sports 0.337 0.459 group (0.420) 0.420 Yes183 (34.08) 17.57 ± 5.35 29.52 ± 4.28 18.21 ± 5.84 No354 (65.92) 17.13 ± 4.55 29.40 ± 4.17 17.90 ± 5.15 History of Ankle Sprains 0.026 0.5066 group 29.32 ± 4.34 0.034 Yes $221 (41.15)$ 17.88 ± 4.88 29.32 ± 4.34 17.90 ± 5.15 No $316 (58.85)$ 16.86 ± 4.78 29.52 ± 4.12 0.000 UnfixedTender Points 0.020 0.200 0.200 With $108 (20.11)$ 18.36 ± 4.98 29.25 ± 4.40 18.75 ± 4.82 Without $300 (55.87)$ 17.16 ± 5.03 29.65 ± 4.22 0.741 groupWithout $300 (55.87)$ 17.16 ± 5.03 29.48 ± 4.98 19.04 ± 4.81 Very severe, unable to walk $23 (4.28)$ 16.04 ± 4.62 29.48 ± 4.98 19.04 ± 4.81 Moderately severe, pain with 	18	No	337 (62.76)	17.11 ± 4.87		29.45 ± 3.96		18.00 ± 5.17	
20Sports21Yes183 (34.08)17.57 \pm 5.3529.52 \pm 4.2818.21 \pm 5.8421No354 (65.92)17.13 \pm 4.5529.40 \pm 4.1717.90 \pm 5.150.03423History of Ankle Sprains0.0260.506 grant0.506 grant0.03424Yes221 (41.15)17.88 \pm 4.8829.33 \pm 4.3418.52 \pm 5.380.02425No316 (58.85)16.86 \pm 4.7829.52 \pm 4.1217.64 \pm 5.380.00229With108 (20.11)18.36 \pm 4.9829.25 \pm 4.4018.75 \pm 4.8218.75 \pm 4.8229Without300 (55.87)17.16 \pm 5.0329.65 \pm 4.220.741 grant18.75 \pm 4.8230Without300 (55.87)17.16 \pm 5.0329.48 \pm 4.980.741 grant19.04 \pm 4.8131Unclear129 (24.02)16.67 \pm 5.4628.88 \pm 3.8019.04 \pm 4.8134Very severe, unable to walk23 (4.28)16.04 \pm 4.6229.48 \pm 4.9819.04 \pm 4.8135Moderately severe, pain with pressure66 (12.29)16.67 \pm 5.4628.88 \pm 3.8017.90 \pm 5.5039For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 \pm 5.50	19	Frequent Participation in			0.337		0.459 5 0 0		0.420
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20	Sports					g, bm		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	21	Yes	183 (34.08)	17.57 ± 5.35		29.52 ± 4.28	VI tr	18.21 ± 5.84	
13 24 25 26 25 26 27History of Ankle Sprains Yes No 270.026 221 (41.15) 21.18.26 ± 4.88 29.33 ± 4.34 29.52 ± 4.120.056 \overline{g} 29.33 ± 4.34 29.52 ± 4.120.021 18.52 ± 5.38 17.64 ± 5.380.002 0.0020.002 0.200 \overline{g} 17.64 ± 5.380.002 0.0020.002 0.00228 29 29 29 20With 108 (20.11)18.36 ± 4.98 108 (20.11)29.25 ± 4.40 29.25 ± 4.4018.75 ± 4.82 18.27 ± 5.5518.75 ± 4.82 18.27 ± 5.5530 31 31 31 32 33 34Unclear 129 (24.02)16.67 ± 4.10 66 (12.29)29.11 ± 4.02 16.67 ± 5.460.741 \overline{g} 29.52 ± 4.2318.32 ± 4.81 18.33 ± 4.8134 35 36 37 38 39Moderately severe, pain with pressure 37 38 3966 (12.29) 16.67 ± 5.4629.52 ± 4.230.741 \overline{g} 19.04 ± 4.81 18.33 ± 4.8136 37 38 39Proper review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 ± 5.50	22	No	354 (65.92)	17.13 ± 4.55		29.40 ± 4.17	ain .	17.90 ± 5.15	
24Yes221 (41.15) 17.88 ± 4.88 29.33 ± 4.34 and since the state of the st	23	History of Ankle Sprains			0.026		0.506 jg 📓		0.034
25 26 27No Unfixed Tender Points Around the Ankle Joint316 (58.85) 16.86 ± 4.78 0.020 29.52 ± 4.12 0.20017.64 \pm 5.38 0.0020.00229With108 (20.11) 18.36 ± 4.98 300 (55.87) 29.25 ± 4.40 29.65 \pm 4.22 18.75 ± 4.82 18.27 \pm 5.55 18.75 ± 4.82 18.27 \pm 5.55 18.75 ± 4.82 18.27 \pm 5.55 16.67 ± 4.10 10.667 \pm 4.10 29.11 ± 4.02 29.11 \pm 4.02 0.741 s. 19.04 ± 4.81 18.33 \pm 4.81 19.04 ± 4.81 18.33 \pm 4.81 19.04 ± 4.81 18.33 \pm 4.81 17.44 ± 4.75 29.52 ± 4.23 17.90 ± 5.50 30Work very severe, slight pain with pressure 448 (83.43) 17.44 ± 4.75 29.52 ± 4.23 17.90 ± 5.50 31For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 17.90 ± 5.50 17.90 ± 5.50	24	Yes	221 (41.15)	17.88 ± 4.88		29.33 ± 4.34	, ar	18.52 ± 5.38	
26 27 28Unfixed Tender Points Around the Ankle Joint0.0200.2000.2000.2000.00229 29With108 (20.11)18.36 \pm 4.9829.25 \pm 4.4018.75 \pm 4.8218.75 \pm 4.8218.75 \pm 4.8218.75 \pm 4.8218.75 \pm 4.8218.75 \pm 4.8218.27 \pm 5.5516.76 \pm 5.0329.65 \pm 4.2218.75 \pm 4.8218.27 \pm 5.5516.76 \pm 5.3016.76 \pm 5.300.74118.33 \pm 4.8116.76 \pm 5.300.44034Very severe, unable to walk pressure23 (4.28)16.67 \pm 5.4628.88 \pm 3.8019.04 \pm 4.8118.33 \pm 4.8118.33 \pm 4.8118.33 \pm 4.8136pressure66 (12.29)16.67 \pm 5.4629.52 \pm 4.2317.90 \pm 5.5017.90 \pm 5.5037Not very severe, slight pain with pressure448 (83.43)17.44 \pm 4.7529.52 \pm 4.2317.90 \pm 5.5039404414424444444445445446446447448	25	No	316 (58.85)	16.86 ± 4.78		29.52 ± 4.12	ž př	17.64 ± 5.38	
28 29Around the Ankle Joint108 (20.11)18.36 \pm 4.9829.25 \pm 4.4018.75 \pm 4.8230With 300 (55.87)300 (55.87)17.16 \pm 5.0329.65 \pm 4.2218.75 \pm 4.8231Unclear129 (24.02)16.67 \pm 4.1029.11 \pm 4.0216.76 \pm 5.3032Severity of Ankle Injury0.3230.741 si19.04 \pm 4.8134Very severe, unable to walk pressure23 (4.28)16.67 \pm 5.4628.88 \pm 3.8019.04 \pm 4.8136pressure66 (12.29)16.67 \pm 5.4629.52 \pm 4.2317.90 \pm 5.5037Not very severe, slight pain with pressure448 (83.43)17.44 \pm 4.7529.52 \pm 4.2317.90 \pm 5.5038For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 \pm 5.50	26 27	Unfixed Tender Points			0.020		0.200 🛱 🕄		0.002
29With all of the order108 (20.11) 18.36 ± 4.98 29.25 ± 4.40 18.75 ± 4.82 30Without $300 (55.87)$ 17.16 ± 5.03 29.65 ± 4.22 18.27 ± 5.55 31Unclear $129 (24.02)$ 16.67 ± 4.10 29.11 ± 4.02 16.76 ± 5.30 33Very severe, unable to walk $23 (4.28)$ 16.04 ± 4.62 29.48 ± 4.98 19.04 ± 4.81 35Moderately severe, pain with pressure $66 (12.29)$ 16.67 ± 5.46 28.88 ± 3.80 19.04 ± 4.81 36pressure $448 (83.43)$ 17.44 ± 4.75 29.52 ± 4.23 17.90 ± 5.50 39For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 17.90 ± 5.50	27	Around the Ankle Joint					ilar Lu		
30Without300 (55.87)17.16 \pm 5.0329.65 \pm 4.2218.27 \pm 5.5531Unclear129 (24.02)16.67 \pm 4.1029.11 \pm 4.0218.27 \pm 5.5532Severity of Ankle Injury0.3230.741 $\frac{19}{28}$ 16.76 \pm 5.3034Very severe, unable to walk23 (4.28)16.04 \pm 4.6229.48 \pm 4.9819.04 \pm 4.8135Moderately severe, pain with66 (12.29)16.67 \pm 5.4628.88 \pm 3.8019.04 \pm 4.8136pressure448 (83.43)17.44 \pm 4.7529.52 \pm 4.2317.90 \pm 5.5038pressureFor peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 \pm 5.50	20	With	108(2011)	18.36 ± 4.98		29.25 ± 4.40	ne	18.75 ± 4.82	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	30	Without	300 (55 87)	17.16 ± 5.03		29.65 + 4.22	10,	18.77 ± 5.52	
32Severity of Ankle Injury125 (24.02)10.07 \pm 4.1025.11 \pm 4.0210.76 \pm 5.300.44033Very severe, unable to walk23 (4.28)16.04 \pm 4.6229.48 \pm 4.9819.04 \pm 4.8119.04 \pm 4.8135Moderately severe, pain with pressure66 (12.29)16.67 \pm 5.4628.88 \pm 3.8018.33 \pm 4.8118.33 \pm 4.8136pressure448 (83.43)17.44 \pm 4.7529.52 \pm 4.2317.90 \pm 5.5039PressureFor peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 \pm 5.50	31	Unclear	129(2402)	16.67 ± 4.10		29.03 = 1.22 29.11 + 4.02	olo	16.27 = 5.39 16.76 + 5.30	
33Severity of Finite Highly (0.141) $(0.$	32	Severity of Ankle Injury	12) (24.02)	10.07 ± 4.10	0 323	27.11 ± 4.02	gie 25 ی	10.70 ± 0.50	0 4 4 0
34Very severe, unable to walk25 (4.26)10.04 \pm 4.0227.45 \pm 4.7510.04 \pm 4.0135Moderately severe, pain with pressure66 (12.29)16.67 \pm 5.4628.88 \pm 3.8018.33 \pm 4.8136pressure448 (83.43)17.44 \pm 4.7529.52 \pm 4.2317.90 \pm 5.5038pressure448 (83.43)For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 \pm 5.504443For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml17.90 \pm 5.50	33	Very severe unable to walk	23 (4 28)	16.04 ± 4.62	0.525	29.48 ± 4.98	0.741 <u>9</u> #	19.04 ± 4.81	0.440
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	34	Moderately severe pain with	25 (4.20)	16.04 ± 4.02 16.67 ± 5.46		27.40 ± 4.90 28.88 ± 3.80	ger	19.04 ± 4.01 18.33 ± 4.81	
36 pressure 37 Not very severe, slight pain with pressure 448 (83.43) 17.44 ± 4.75 29.52 ± 4.23 Biographic proprint proprint proprint proprint proprint 17.90 ± 5.50 38 pressure For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 17.90 ± 5.50	35	program	66 (12.29)	10.07 ± 5.40		20.00 ± 5.00	ıce	10.33 ± 4.01	
Not very severe, slight pain with pressure 38 pressure 40 41 42 43 448 (83.43) For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml	30 27	Not yorry gavara alight pain with		17 11 + 1 75		20.52 ± 4.22	Bi	17.00 + 5.50	
So pressure 39 40 41 42 43 44 45	38	Not very severe, slight pain with	448 (83.43)	$1/.44 \pm 4.73$		29.32 ± 4.23	olio	$1/.90 \pm 5.30$	
40 41 42 43 For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 45	39	pressure					gra		
41 42 43 For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 45	40						lph		
42 43 For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 45	41						iqu		
 For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml 45 	42						e Q		
44 45	43		For peer rev	/iew only - http://h	miopen.bmi.co	om/site/about/quideli	nes.xhtml 🗖		
45	44				<u>, , , , , , , , , , , , , , , , , , , </u>				
A.C.	45								

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					24-08; nt, inc		
Cartilage Injury Of The Talus			<0.001		192 n 192		<0.001
Ves	21 (3.91)	19.00 ± 4.72	<0.001	28.05 ± 3.89	0.172 g on	20 14 + 6 21	<0.001
No	296 (55 12)	17.00 ± 4.72 17.87 ± 5.11		20.03 ± 5.09 29 71 + 4 40	oru_A	1857 + 544	
Unclear	220 (40 97)	16.33 ± 4.29		29.71 ± 1.10 29.21 ± 3.94	oril Ses	17.05 ± 5.11	
Recovered From Ankle Injury	220 (10.57)	10.55 - 1.27	0.025	29.21 - 5.91	0 493 ego	17.00 - 0.11	0.005
Yes	463 (86 22)	17.48 ± 4.76	0.020	29.43 ± 4.25	ate	18.26 ± 5.33	0.000
No	74 (13 78)	16.07 ± 5.20		29.10 = 1.20 29.50 ± 3.94	nen d to	16.20 = 5.55 16.43 ± 5.57	
Underlying or Chronic	(10170)	10.07 - 0.20		->	vnlc v te		
Diseases					upe kt a		
Hypertension			0.509		0.500 de ried		0.431
Yes	28 (5.21)	17.25 ± 5.05		28.61 ± 5.32	rom ur (/ data	18.82 ± 5.56	
No	509 (94.79)	17.28 ± 4.83		29.49 ± 4.14		17.96 ± 5.39	
Hyperlipidemia	× /		0.845		0.071 n. 00		0.151
Yes	7 (1.30)	17.29 ± 5.71		26.71 ± 3.73	9, /bm	15.71 ± 3.09	
No	530 (98.70)	17.28 ± 4.83		29.48 ± 4.20	Alt	18.04 ± 5.41	
Diabetes			0.205		0.207 🖬 🦉		0.975
Yes	8 (1.49)	14.63 ± 1.79		31.63 ± 4.87	ing	17.88 ± 5.44	
No	529 (98.51)	17.32 ± 4.86		29.41 ± 4.19	, j. ar	18.01 ± 5.40	
Tumor, etc.			0.270		0.574 💆 💐		0.133
Yes	4 (0.74)	14.00 ± 2.16		30.00 ± 4.24	imi on	13.50 ± 5.97	
No	533 (99.26)	17.31 ± 4.85		29.44 ± 4.21	Jun	18.04 ± 5.38	
Other			0.566		0.345 <u>e</u>		0.794
Yes	39 (7.26)	17.31 ± 4.88		29.92 ± 2.99	0, 2 1no	17.92 ± 4.83	
No	498 (92.74)	17.28 ± 4.84		29.40 ± 4.29	log	18.01 ± 5.44	
None			0.224		0.821 🥵 at		0.301
Yes	422 (78.58)	17.47 ± 4.90		29.49 ± 4.19	Ag	18.14 ± 5.36	
No	115 (21.42)	16.61 ± 4.55		29.27 ± 4.36	enc	17.52 ± 5.49	
Prefer not to disclose			0.070		0.116 b		0.026
Yes	51 (9.50)	16.24 ± 4.40		28.61 ± 4.14	ibli	16.59 ± 5.63	
No	486 (90.50)	17.39 ± 4.87		29.53 ± 4.21	ogr	18.15 ± 5.35	
					apł		

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Page 35 of 46	BMJ Open cop	
1 2 3 4 5 6 7 8	Note: Quantitative variables are represented as $M \pm SD$, and categorical variables are represented as $N(\%$ for uses the second secon	
9 10 11 12 13 14 15 16 17	2025. Downloaded from i related to text and data r data r	
18 19 20 21 22 23 24 25	nining, Al training, and	
26 27 28 29 30 31 32 33	similar technologies.	
34 35 36 37 38 39 40	. Agence Bibliographi	
41 42 43 44 45	For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml	

tems	uding for	S S Yes/Correc t	No/ Incorrec	Unc
X1. Do you have a good understanding of Osteochondral Lesions of the Talus?	uses	23.46	76.54	
K2. Calcaneal cartilage is a transparent tissue located on the surface of the ankle joint. It has a smoot lastic surface, which can reduce friction and impact between the bones at both ends of the ankle providing protection for the ankle joint.	h and to	44.88	5.03	50.
K3. Calcaneal cartilage injury refers to damage or fracture of the cartilage occurring at the top of the nkle joint.	infection and	40.04	5.40	54.
4. The main symptoms of Osteochondral Lesions of the Talus include joint pain and swelling.	and	45.81	5.77	48.
K5. Ankle sprains or improper jumping and landing can often lead to Osteochondral Lesions of the T	alu	48.23	5.21	46.
K6. High arches are more susceptible to Osteochondral Lesions of the Talus than flat feet.	a m	31.84	16.57	51.
K7. Calcaneal cartilage can regenerate.	inii ES)	21.79	17.32	60.
K8. The calcaneus and the distal ends of the tibia and fibula together form the ankle joint, which argest weight-bearing joint in the human body.	is the	39.11	5.59	55.
K9. Calcaneal cartilage injury is one of the main causes of chronic ankle pain.	rair	40.97	5.96	53.
(10. Clinical manifestations of Osteochondral Lesions of the Talus often include pain in the ankle fter weight-bearing and exercise, which can be relieved by rest.	jo j int a	40.60	8.38	51.
X11. Osteochondral Lesions of the Talus are relatively easy to heal, and symptoms do not recur.	nd :	22.53	21.97	55.
K12. In case of emergency treatment for cartilage injury, it is recommended to rest, apply cold con ice), immobilize with a plaster or splint, and elevate the affected limb (RICE principle).	npress 9	46.93	5.21	47.
K13. More severe Osteochondral Lesions of the Talus may require ankle fusion or ankle replace urgery.	emont a	39.29	5.03	55.
K14. Osteochondral Lesions of the Talus are often overlooked at the onset of ankle sprains. After r for a period and resuming activities, pain or swelling may recur.	esting give	41.71	4.84	53.

Page 37 of 46	BMJ Open			/bmjopen-		
1 2 3	Table S3. Attitude Dimension, %		Ċ	2024-0874 iaht inclu		
4 5	Home	Strongly	A		Dia a grada	Strongly
6	A1 L consider ankle sprains to be minor injuries, so L don't nay much	Agree	Agree		Disagree	Disagree
8	attention to them	7.26	7.82	а т2 8.49	36.69	19.74
9 10	A2. I believe that Osteochondral Lesions of the Talus can heal on their own.	5.03	13.59	seigner 7.62	30.17	13.59
11 12 13	A3. I think that after an ankle injury, self-medication can accelerate recovery, and there is no need to go to the hospital.	4.84	8.01	nent Sul	36.87	18.81
14 15	A4. I believe that after an ankle injury, massage can improve blood circulation.	11.17	24.21	ade uperieu fi and c	21.04	10.80
16 17	A5. I think that the cost of examinations like magnetic resonance imaging (MRI) for Osteochondral Lesions of the Talus is too expensive.	12.66	22.91		15.08	9.50
19 20	A6. I think that surgery for Osteochondral Lesions of the Talus carries too much risk, and conservative treatment is better.	5.40	17.50	1.21	16.01	9.87
21 22	A7. Minimally invasive arthroscopic treatment has minimal trauma and low risk, and I am more accepting of it.	9.31	29.05	5.25	9.50	6.89
23 24 25	A8. I believe that ankle sprains should not be taken lightly, and it is necessary to go to the hospital to check for possible Osteochondral Lesions of the Talus	15.27	30.54	a 39.11	8.19	6.89
26 27 28	A9. I am willing to have a comprehensive understanding of the emergency treatment and daily management of Osteochondral Lesions of the Talus.	16.95	32.59	n of of 0.87	7.45	6.15
29 30 31 32 33 34 35 36				ie 10, 2025 at Agence E		
37 38 39 40 41 42				Sibliographique c		
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Always/Strongly	Often/Agree	Sometimes/Neutra	4 87 92 Parely/Disagree	Never/Strongly
7.82	7.45	32.77 ទី		18.62
12.66	8.57	30.54	±i 2025. 31.28	16.95
18.81	20.30	28.86 and	Superior 20.86	11.17
16.01	13.78	27.93 m	22.53	19.74
32.22	24.39	ي 21.79 ک	13.59	8.01
11.55	19.93	52.89 training	9.87	5.77
		, and similar technologies.	j.com/ on June 10, 2025 at Agence Bibliographic	
	E Always/Strongly Agree 7.82 12.66 18.81 16.01 32.22 11.55	BMJ Open Always/Strongly Agree Often/Agree 7.82 7.45 12.66 8.57 18.81 20.30 16.01 13.78 32.22 24.39 11.55 19.93	Always/Strongly Agree Often/Agree Sometimes/Neutraling offen/Agree 7.82 7.45 32.77 12.66 8.57 30.54 18.81 20.30 28.86 16.01 13.78 27.93 32.22 24.39 21.79 11.55 19.93 52.89	BWJ Open by opping by oppi

	Knowledge	Attitude	Practio
Knowledge	1		
Attitude	0.076 (0.077)	1	
Practice	0.382 (<0.001)	0.220 (<0.001)	1

Model 1	Ref	Measured results
RMSEA	<0.08 good	0.044
SRMR	<0.08 good	0.022
TLI	>0.8 good	0.772
CFI	>0.8 good	0.897

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	Arrace Euglistic Regression Analysis for Rhowledg	Univariate	Analysis 5 N	
Dimension	Variables	OR	95%CI 📅 🕺	Р
Knowledge			<u> </u>	
	Age	1.002	0.985-1. ₿₿	0.845
	Gender		reig reig	
	Male	0.878	0.573-1. a 2	0.545
	Female	Ref.	d to	
	BMI	0.993	0.955-1.@J	0.723
	Education		xt a	
	Junior high school or below	Ref.	nd of	
	High school / Vocational school	1.551	0.756-3.2203	0.233
	College / Bachelor's degree 🎽 🦳	1.586	0.916-2. 3@	0.111
	Master's degree and above	2.333	0.764-6. 200	0.125
	Ethnicity		lig, lig	
	Han ethnicity	1.405	0.814-2. ≩ 31 <u></u>	0.238
	Ethnic minority	Ref.	rair ^{Den}	
	Employment		.bm	
	Employed	1.996	1.366-2.222	< 0.00
	Unemployed	Ref.	nd m	
	Monthly Per Capita Income, Yuan		sim on	
	<2,000	Ref.		
	2,000-5,000	1.687	0.856-3. 8 03	0.143
	5,000-10,000	2.377	1.172-5. 9 61.	0.020
	>10,000	2.064	0.920-4.7688	0.082
	Prefer not to disclose	0.774	0.375-1.561°	0.497
	Smoking		Ag	
	Never smoked	Ref.	Jen	
	Former smoker	0.569	0.271-1.100	0.111
	Current smoker	0.868	0.494-1.478	0.612
	Alcohol Consumption		liog	
	Never consumed alcohol	Ref.	Iraç	

	В	MJ Open	bmjopen- by copyr		Page 42 of 46
1			ight		
2			in log		
3	Former drinker	0.821	0.473-1. 2 88 2	0.471	
4	Current drinker	0.668	0.421-1. 9 43 	0.081	
5	Medical Insurance		on g fr		
7	Yes	1 776	1.082 - 3.020	0.028	
8	No	Ref	se En	0.020	
9	Fraguent Welking on Uneven Surfaces	1001.	s r		
10	Vos	1 252		0.247	
11		1.235 D-f	0.834-1.8.94	0.247	
12		Rei.	to		
13	Frequent Participation in Sports	1 500			
14	Yes	1.532	1.040-2.25	0.030	
15	No	Ref.	nd d		
16	History of Ankle Sprains		datir (
17	Yes	1.727	1.186-2. 3 🔂 🚽	0.004	
18	No	Ref.			
19	Unfixed Tender Points Around the Ankle Joint		ng,		
20	With	1 673	1 053-2 \$47	0.028	
21	Without	Ref		0.020	
22	Unclear	0 701	0.425 1 = 326	0.154	
25	Souverity of Ankle Injury	0.701	0.423-1.332	0.154	
24	Severity of Ankie Injury	0.400		0.200	
25	very severe, unable to walk	0.488	0.140-1.028	0.200	
20	Moderately severe, pain with pressure	0.804	0.436-1. <u>#</u> 21g	0.468	
28	Not very severe, slight pain with pressure	Ref.	lar Ju		
29	Cartilage Injury Of The Talus		tec		
30	Yes	1.119	0.431-2.3440	0.809	
31	No	Ref.			
32	Unclear	0.442	0.291-0.5625	< 0.001	
33	Recovered From Ankle Injury		S. At A		
34	Yes	1 571	0 892-2 913	0 132	
35	No	Ref		0.122	
36	Underlying or Chronic Diseases	Kei.	B		
37	Underlying of Chronic Diseases		iblii		
38	Neg	0.005		0.629	
3 9	Y es	0.805	U.312-1.849a	0.028	
40 41			hiq		
41 40			ue		
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6		No	0.977 Ref		0.978
/		Other	Kel.		
8		V	0.056		0.004
9		Yes	0.956	0.440-1.82512	0.904
10		No	Ref.	itec	
12		None		l to	
13		Yes	1.621	1.007-2. 6% 5	0.053
14		No	Ref.	ct a	
15	Attitude			nd f	
16		Knowledge	1.042	1.003-1.98	0.036
17		Age	0.968	0.947-0. 9 87 -	0.001
18		Gender			
19		Male	0 596	0 377-0922	0.023
20		Female	Ref		0.023
21		BMI			0 107
22		Divin Education	1.051	0.993-1.2095	0.107
23			Def	ng, <u>n</u> j	
24		Junior nign school or below	Ker.		0.005
25		High school / Vocational school	1.589	0.742-3.454	0.235
20		College / Bachelor's degree	2.123	1.194-4.	0.014
28		Master's degree and above	1.314	0.337-4.293	0.667
29		Ethnicity		ne ∖	
30		Han ethnicity	1.062	0.627-1.358.0	0.828
31		Ethnic minority	Ref.	202	
32		Employment		gie.	
33		Employed	0.637	0.424-0.947	0.028
34		Unemployed	Ref.	gei	
35		Monthly Per Capita Income. Yuan		nce	
36		<2 000	Ref	B.	
3/ 20		2,000-5,000	1 328	0 656-2 84 /i	0.446
30		5,000 10,000	1.520	0 838 3 822	0.149
40		5,000-10,000	1./4/	0.030-3.032ap	0.148
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42				Je c	
43		For more you down only a latter ()	/hmionon hmi com /site /skt/		
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1			righ		
2			5, 4 i 6		
3	>10.000	1.958	0.854-4.832	0.117	
4	Prefer not to disclose	1 741	0 869-3 \$01\$	0 1 3 1	
5	Smoking		ig f		
6 7	Never smoked	Ref	or J		
/ 8	Former smoker	1 146	0.616-2	0.658	
9	Current smoker	0.486	0.248_0 \$	0.026	
10	Alashal Consumption	0.400	0.248-0.000	0.020	
11	Alconol Consumption	Daf	em o		
12	Formen drinken	Kel. 0.707		0.220	
13	Former drinker	0.707	0.392-1.5462	0.230	
14	Current drinker	0.957		0.843	
15	Medical Insurance	4		0.004	
16	Yes	1.234	0.769-2	0.394	
17	No	Ref.			
18	Frequent Walking on Uneven Surfaces		in is is the second sec		
20	Yes	1.281	0.871-19880	0.206	
21	No	Ref.			
22	Frequent Participation in Sports		rai <mark>De</mark> n		
23	Yes	1.335	0.902-1 ,269	0.146	
24	No	Ref.	ບຸ <u>-</u> . ລີ		
25	History of Ankle Sprains		nd om		
26	Yes	0.873	0.593-1.5792	0.489	
27	No	Ref.			
28	Unfixed Tender Points Around the Ankle Joint		r te		
29	With	0 717	0 427-1 \$750	0 196	
31	Without	Ref		0.170	
32	Unclear	0.809	0.505-1976	0 369	
33	Severity of Ankle Injury	0.009	s. s	0.507	
34	Very severe unable to walk	1 00/	0 412 2 62	0.847	
35	Moderately severe, pain with pressure	0.867	$0.472 \cdot 2.02 / 30$	0.636	
36	Not your govern slight pain with pressure	0.007 Def	0.470-1.554® መ	0.050	
37	Contile on Lairway Of The Tales	Kel.	<u> </u>		
38	Cartilage Injury Of The Talus	0.506	O 1 42 1 4115	0.221	
39 40	with	0.506	U.143-1.41 lai	0.231	
40 //1			hiq		
42			ue		
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			en-2 pyri	
1			024 ght	
2			in - 08	
3	Without	Ref.	clu	
4 F	Unclear	0.699	0.470-1. ᢖ 32 <mark>№</mark>	0.074
5	Recovered From Ankle Injury		on g fe	
7	Yes	1.267	0.731-2. 2 90	0.414
8	No	Ref	is En	
9	Underlying or Chronic Diseases		sei s re	
10	Hypertension		l25. Slat	
11	Vac	0.927		0.600
12		0.03/ Def	0.324-1.3025	0.090
13		Kel.	text Su	
14	Hyperlipidemia	0.110		0.400
15	Yes	0.418	0.022-2.4 6/0	0.422
16	No	Ref.	at:	
17	Other			
18	Yes	0.995	0.463-1.23	0.988
19	No	Ref.	ng,	
20	None		≥ njo	
21	Yes	1.031	0.656-1.649	0.898
22	No	Ref		
23 24 Pr	actice			
25	Knowlodgo	1 1 4 5		<0.001
26		1.143	1.090-1.498	<0.001
27	Attitude	1.131	1.093-1.3125	<0.001
28	Age	1.000	0.982-1.918	0.967
29	Gender	0.404		0.00 .
30	Male	0.481	0.284-0.3850	0.005
31	Female	Ref.		
32	BMI	0.999	0.958-1. ឆ្ 40 ្ន	0.969
33	Education		ş. tt A	
34	Junior high school or below	Ref.	ger	
35 26	High school / Vocational school	1.175	0.548-2.524	0.677
30 27	College / Bachelor's degree	1 158	0 657-2 136₩	0.623
38	Master's degree and above	2 508	0.818-7.392	0.097
39	Fthnicity	2.500		0.097
40	Dunikuy		hdt	
41			iqu	
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3	Han ethnicity	1.547	0.846-3.8332	0.177	
4	Ethnic minority	Ref.	din		
5	Employment		g fo		
7	Employed	1.347	0.892-2. 0 26 x	0.154	
8	Unemployed	Ref.	see Englishing		
9	Monthly Per Capita Income, Yuan		20 s rei		
10	<2.000	Ref	lat		
11	2 000-5 000	1 814	0.821-4 24 25	0 162	
12	5,000-10,000	3 232		0.007	
13	>10,000	2 9/2	1 102_7 * 57 a	0.007	
14	Prefer not to disclose	1 275	0.562.339998	0.578	
15	Smolving	1.275	0.302-3.5000 9 5 5	0.378	
10	Silloking Navan amalya d	Def	ata		
18	Never smoked	Rel. 0.422		0.041	
19	Former smoker	0.423		0.041	
20	Current smoker	0.544	0.2/1-19915	0.069	
21	Alcohol Consumption		VI tr		
22	Never consumed alcohol	Ref.	ain		
23	Former drinker	0.587	0.308-1. ð 57 g	0.088	
24	Current drinker	0.510	0.300-0.3385	0.010	
25	Medical Insurance		nd om		
26	Yes	1.911	1.103-3.5019	0.027	
27	No	Ref.	iia L		
28	Frequent Walking on Uneven Surfaces		ine r te		
30	Yes	0.964	0.632-1.4580	0.863	
31	No	Ref.	20		
32	Frequent Participation in Sports		25 ogić		
33	Yes	0.913	0 591-1 394	0.678	
34	No	Ref		0.070	
35	History of Ankle Sprains	Rei.	ince		
36	Vos	1 1 5 9	0.760 1.727	0.481	
37	I CS	1.150 Dof	0.709-1.737	0.401	
38	INU Unfined Tenden Deinte Anound the Archiele Lei-	KCI.	ogr		
39 40	Unlixed Lender Points Around the Ankle Joh	ΠL	ap		
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123 With 0.799 0.467-1 0.400 Without Ref. 0.513 0.292-0 0.016 Severity of Ankle Injury 0.679 0.194-1 0.491 Very severe, unable to walk 0.679 0.194-1 0.491 Moderately severe, pin with pressure 0.791 0.400-1 0.477 Notevery severe, slight pain with pressure Ref. 0.037 0.037 Without 2.586 1.039-6 0.037 0.042 Without 0.556 0.355-0 0.009 0.042 No Ref. 0.0465 0.045 Unclear 0.556 0.355-3 0.009 Recovered from Ankle Injury 2.066 1.071-4 0.042 No Ref. 0.0465 0.0465 No Ref. 0.0553 0.0979 No Ref. 0.558 0.553 Others 1.011 0.4141-2 0.558 None 1.162 0.712-1 0.558				opy	
With 0,799 0,467-1 Without Ref. 0.016 Severity of Ankle Injury 0.401 0.491 Very severe, unable to walk 0.679 0.194-1 0.491 Moderately severe, pain with pressure 0.791 0.400-1 0.477 Not very severe, sight mith pressure 0.791 0.400-1 0.477 Without Ref. 0.009 0.009 Without Ref. 0.009 0.009 Without Ref. 0.009 0.042 Without Ref. 0.009 0.045 Unclear 0.556 0.355-0 0.009 Vers 2.066 1.071-4 0.042 No Ref. 0.042 No Ref. 0.045 Vers 1.370 0.555-3 0.465 No Ref. 0.979 No Ref. 0.979 No Ref. 0.979 No Ref. 0.979 No Ref. 0.558 Wers 1.162 0.712-1 0.558 </td <td>1</td> <td></td> <td></td> <td>rrig </td> <td></td>	1			rrig	
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Multiout Ket. 0.294 0.016 Severity of Ankle Injury 0.294 0.491 0.491 With out very severe, unable to walk 0.679 0.194-18 0.491 Moderately severe, unable to walk 0.679 0.401-18 0.491 Moderately severe, pain with pressure 0.791 0.400-18 0.477 Cartilage Injury Of The Talus 0.037 0.037-18 0.009 With 2.586 1.039-6 0.009 Unclear 0.556 0.355-5 0.009 Mithout Ref. 0.042 0.042 No Ref. 0.0465 0.0465 No Ref. 0.0465 0.0465 Vers 1.370 0.555-5 0.858 0.4665 No Ref. 0.979 0.555 0.059 0.0465 Vers 1.011 0.411-2.2 0.558 0.558 Others 1.162 0.712-1.8 0.558 0.558	4	With	0.799	0.40/-1.5312	0.400
6 Unclear 0.313 0.292-0.80% 0.016 8 Severity of Ankle Injury 0.491 0.491 9 Moderately severe, pain with pressure 0.791 0.400-1 address 0.477 10 Not very severe, sign the pain with pressure Ref. 0.407 11 Cartilage Injury Of The Talus 0.556 0.355-0 address 0.009 12 Without Ref. 0.009 0.042 13 Without Ref. 0.042 14 Work 2.586 1.039-6 address 0.009 15 Unclear 0.556 0.355-0 address 0.009 16 Recovered from Ankle Injury 0.042 0.042 17 Yes 2.066 1.071-4 0.042 18 No Ref. 0.042 19 Underlying or Chronic Diseases 1.370 0.555-3 address 0.465 10 Others 1.011 0.411-2 address 0.558 10 No Ref. 0.558 0.558 10 None 1.162 0.712-1 as 100	5	Without	Ref.		
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8 Very severe, unable to walk 0.679 0.194-1 3652 0.491 9 Moderately severe, slight pain with pressure Ref. 0.477 11 Cartilage Injury Of The Talus 0.556 0.355-03 deget of 0.037 12 With 0.556 0.355-03 deget of 0.037 13 Without Ref. 0.009 14 Without Ref. 0.042 15 Unclear 0.056 0.355-03 deget of 0.042 16 Recovered from Ankle Injury 0.042 0.042 17 Yes 2.066 1.071-4 deget of 0.042 18 No Ref. 0.042 19 Underlying or Chronic Diseases 1.370 0.555-3 deget of 0.0455 24 Others 1.011 0.441-2 at 102 0.979 25 No Ref. 900 of 0.955 900 of 0.955 26 None 1.162 0.712-1 at 54 0.558 27 No Ref. 900 of 0.955 900 of 0.955 38 None 1.162 0.712-1 at 54 0.558 39 Septe	7	Severity of Ankle Injury			
9 Moderately severe, pain with pressure 0.791 0.400-1 are too too too too too too too too too to	8	Very severe, unable to walk	0.679	0.194-1.855	0.491
Not very severe, slight pain with pressure Ref. Image for the severe slight pain with pressure Ref. With 2.586 1.039-6 0.037 Without Ref. 0.009 Recovered from Ankle Injury 0.066 1.071-4 0.042 No Ref. 0.045 Yes 1.370 0.5553 0.465 No Ref. 0 0.979 No Ref. 0.558 0.558	9	Moderately severe, pain with pressure	0.791	0.400-1.468	0.477
Cartilage Injury Of The Talus Cartilage Injury Of The Talus Cartilage Injury Of The Talus With Ref. 0.037 Unclear 0.556 0.355-0 0.009 Recovered from Ankle Injury 0.066 1.071-4 0.042 No Ref. 0.042 Underlying or Chronic Diseases 0.045 0.042 Ves 1.370 0.555-33 0.465 No Ref. 0.0465 Ves 1.370 0.555-33 0.465 Ves 1.011 0.441-2 0.979 No Ref. 0.979 No Ref. 0.558 Ves 1.011 0.441-2 0.979 No Ref. 0.558 Nonc 1.162 0.712-1 0.558 Nonc 1.162 0.712-1 0.558 Nonc I.162 0.558 0.558 Nonc I.162 0.558 0.558 No Softward State 0.558 0.558 No Softward State 0.558 0.558 <td>10</td> <td>Not very severe, slight pain with pressure</td> <td>Ref.</td> <td>late</td> <td></td>	10	Not very severe, slight pain with pressure	Ref.	late	
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26 No Ref. 0.712-1185 4 0.558 27 None 1.162 0.712-1185 4 0.558 29	25	Ves	1 011	$\sim 0.441_{-2} \overline{3}10^{2}$	0 979
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Knowledge, attitude, and practice of patients with ankle injury regarding osteochondral lesions of the talus: a crosssectional study in Wuxi, China

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Knowledge, attitude, and practice of patients with ankle injury regarding osteochondral lesions of the talus: a cross-sectional study in Wuxi, China

Running title: KAP of OLT among patients

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Abstract

Objective: To investigate knowledge, attitude, and practice (KAP) of patients with ankle injury regarding osteochondral lesions of the talus (OLT).

Design: A cross-sectional study.

Setting: Between March and September 2023, at the Ninth People's Hospital of Wuxi, Affiliated with Soochow University.

Participants: Among patients with OLT.

Primary and secondary outcome measures: KAP scores and associated factors.

Methods: Data were collected through a researchers-designed, validated questionnaire with four dimensions (sociodemographic characteristics, knowledge, attitude, and practice). Structural equation modeling (SEM) was applied to explore associations among variables.

Results: A total of 537 valid (valid rate: 78.85%) questionnaires were obtained from the responders who aged 27.18 ± 11.01 years, with 151 (28.12) males. The mean KAP scores were 17.28 ± 4.84 (possible range: 0-28), 29.44 ± 4.21 (possible range: 9-45), and 18.01 ± 5.39 (possible range: 6-30), respectively. Structural equation modeling revealed that employment (employed vs. unemployed, $\beta = 1.33$, P = 0.002), had medical insurance ($\beta = 1.19$, P = 0.019), and with a history of ankle sprains ($\beta = 1.08$, P = 0.009) exhibited positively direct effects, while whether with cartilage injury of the talus (no vs. yes, $\beta = -0.73$, P = 0.001) had negatively direct effects on knowledge. Additionally, knowledge ($\beta = 0.08$, P = 0.032) showed positively direct effects on attitude. Furthermore, knowledge ($\beta = 0.38$, P < 0.001), attitude ($\beta = 0.18$, P < 0.001), had medical insurance ($\beta = 1.05$, P = 0.045), and had recovered from ankle injury ($\beta = 1.38$, P = 0.025) exhibited positively direct effects on practice.

Conclusion: Patients with ankle injury had inadequate knowledge, negative attitude and inactive practice toward OLT. Gender, job, medical insurance, cartilage injury of the talus,

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history of ankle sprains, and recovery from ankle injury influenced their KAP.

Keywords: knowledge; attitude; practice; patients with ankle injury; calcaneal cartilage injury; cross-sectional study

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Strengths and limitations of this study

- Large sample size: The study collected 537 valid questionnaires, providing an adequate _ sample for statistical analysis.
- High reliability: The questionnaire demonstrated high internal consistency with a Cronbach's α coefficient of 0.823.
- Cross-sectional design: The cross-sectional design does not establish causal relationships.
- Self-reported data: Reliance on self-reported responses in the questionnaires may introduce response bias or inaccuracies, affecting the reliability of the results.
- Single-center study: The study was conducted in a single center, limiting its generalizability.

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Introduction

Osteochondral lesions of the talus (OLT), recognized as an increasingly common injury, are one of the major challenges in orthopedic surgery, often resulting from acute ankle trauma [1, 2]. These lesions involve the articular cartilage of the talus and associated subchondral bone, and they occur in up to 73% of all ankle fractures, 50% of ankle sprains, and 41% of ankles with lateral instability [3, 4]. The talus's small articular surface, combined with its exposure to high loads, makes it particularly susceptible to such degenerative lesions [5]. These injuries, characterized by cartilage degeneration, lead to joint pain and destruction, presenting a significant hurdle in orthopedic care [6]. Additionally, OLT remain a common and challenging issue in the field, often encountered in the context of ankle injuries, particularly in sports medicine [7, 8]. Effective management and treatment strategies for these lesions are vital in providing the best possible care and outcomes for patients with OLT.

A Knowledge, Attitude, and Practice (KAP) survey is a valuable tool for assessing patients' understanding, beliefs, and behaviors regarding health conditions [9-11]. Given that OLT can result in significant discomfort and negatively impact quality of life, understanding patients' KAP is critical for improving clinical communication, addressing misconceptions, and refining treatment strategies [12].

However, limited studies have explored patients' KAP regarding OLT, leaving a gap in understanding how knowledge and attitudes influence their behaviors toward diagnosis and treatment. This study aimed to investigate KAP of patients with ankle injury regarding OLT and identify factors influencing these dimensions.

Materials and Methods

Study design and participants

This cross-sectional study adhered to the STROBE guidelines, and was conducted between March and September 2023 at the Ninth People's Hospital of Wuxi, Affiliated with Soochow University towards patients of OLT. The inclusion criteria were patients with ankle injury who visited for treatment. The exclusion criteria included individuals with cognitive impairments, language barriers that precluded questionnaire completion, or those providing incomplete demographic or medical information. This study was approved by the Ethic Committee of the Ninth People's Hospital of Wuxi, Soochow University (KS2023070), and all participants provided written informed consent.

Questionnaire

The design of the questionnaire was created by the research team following a comprehensive review of relevant literature pertaining to OLT. The questionnaire was evaluated and revised according to feedbacks from a panel of orthopedic specialists and public health researchers before being pilot-tested among 50 patients. A final Cronbach's α coefficient of 0.823 was obtained from reliability analysis based on the pilot-tested, which confirmed that the questionnaire had strong internal consistency. The final questionnaire, which was administered in Chinese, encompassed data collection across four distinct dimensions, comprising a total of 49 items. The "Sociodemographic characteristics" dimension, which included 19 items, gathered data on various aspects such as age, gender, height, body mass index (BMI), education, ethnicity, employment, monthly per capita income, smoking status, alcohol consumption, and medical insurance [defined as whether participants had active health insurance at the time of the survey (yes/no)]. Data on history of ankle sprains, referred to any previous incidents of ankle sprains, regardless of recovery status. Recovered from ankle injury referred to asking about whether the participants were recovered from ankle

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injury, which was defined as reporting full functional recovery following an ankle injury. Diffuse tender points around the ankle joint, were described as inconsistent or variable pain and tenderness around the ankle joint without a fixed point of discomfort. Additionally, information was collected on the severity of ankle injuries, and the presence of underlying or chronic diseases. The "Knowledge Dimension," consisting of 14 items, evaluated respondents' knowledge with all items having correct answers, where each correct response earned 2 points, unclear answers received 1 point, and incorrect answers received 0 points, resulting in a potential score range of 0 to 28 points. The "Attitude Dimension," comprising 9 items, primarily utilized a five-point Likert scale, where items 7, 8, and 9 had specific scoring values assigned to each response option. Items 1 to 6 had reversed scoring. The potential score range for the attitude dimension ranged from 9 to 45 points. The "Practice Dimension," which consisted of 6 items, utilized a five-point Likert scale, with item 8 having reversed scoring, and the potential score range for the practice dimension was 6 to 30 points. Attaining scores above 70% of the maximum in each section indicated adequate knowledge, positive attitude, and proactive practice [13].

Questionnaire distribution and quality control

The questionnaires were administered to study participants through WeChat and in the clinical setting. This process involved four dedicated research assistants who played pivotal roles in the distribution and collection of the questionnaires. To ensure the smooth execution of these tasks, the research assistants underwent training in small, face-to-face meetings, which encompassed a brief orientation to the subject matter of OLT, as well as comprehensive instruction on the proper procedures for questionnaire distribution and collection. Regular monthly meetings were convened to review the survey's progress and promptly address any emerging issues. The sampling strategy entailed convenience sampling of patients during their clinic visits and subsequent follow-up appointments. Initially, the

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sampling pool comprised around patients who met the specified research criteria, although those with inaccurate contact information were subsequently excluded despite efforts to rectify this through communication. Contact information and options for follow-up, including phone numbers, email addresses, and clinic appointments, were thoughtfully provided to participants to facilitate communication and address any concerns in the later stages of the study. During data cleansing, respondents who completed the questionnaire in less than 90 seconds, those who omitted essential demographic information such as age and height, and individuals who were unwilling to disclose their other medical conditions, were regard as invalid questionnaire.

Sample size calculation:

Sample size was calculated using the formula for cross-sectional studies: $\alpha=0.05$, $\mathbf{n} = \left(\frac{\mathbf{z}_{1-\alpha/2}}{\delta}\right)^2 \times \mathbf{p} \times (1-\mathbf{p})$ where $\mathbf{Z}_{1-\alpha/2}=1.96$ when $\alpha=0.05$, the assumed degree of variability of p=0.5 maximises the required sample size, and δ is admissible error (which was 5% here). The theoretical sample size was 480 which includes an extra 20% to allow for subjects lost during the study. Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies

Statistical analysis

Statistical analysis was conducted using R 4.3.1 software. Continuous variables were described using mean \pm standard deviation (SD), and between-group comparisons were performed using t-tests or analysis of variance (ANOVA). Categorical variables were presented as n (%). Pearson correlation analysis was employed to assess the correlations among KAP scores. Demographic characteristics with statistical differences (P<0.05) in KAP scores among different classifications were included in the path analysis of structural equation modeling (SEM). Additionally, in multivariate analysis, 70% of the maximum possible score was used as the cut-off value. Variables in univariate logistic regression

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analysis with P<0.05 were enrolled in multivariate logistic regression analysis. Two-sided P<0.05 were considered statistically significant in this study.

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Results

Initially, a total of 648 guestionnaires were collected. After data cleaning, the following questionnaires were excluded: 1) 58 questionnaires with response time less than 90 seconds; 3) 48 questionnaires with logical errors, such as abnormal age, height and weight value, and for multiple choice questions, such as "Do you have any underlying or chronic medical conditions?", while selecting" none "and any other disease option; 4) 5 questionnaires under 18 years old. Finally, 537 valid (valid rate: 82.87%) questionnaires remained. Respondents' average age was 27.18 ± 11.01 years, with 151 (28.12) males. Their mean KAP scores were 17.28 ± 4.84 (possible range: 0 - 28), 29.44 ± 4.21 (possible range: 9-45), and 18.01 ± 5.39 (possible range: 6-30), respectively (Table 1). Moreover, the knowledge and practice scores varied from patients with medical insurance states (P = 0.005 and P = 0.033), history of ankle sprains (P = 0.026 and P = 0.001), with diffuse tender points around the ankle joint (P =0.020 and P = 0.002), with an injury to the calcaneal cartilage (both P < 0.001), and whether recovered (P = 0.025 and P = 0.005). Meanwhile, the knowledge score varied from patients with different employment (P < 0.001), monthly per capita income (P < 0.001), alcohol consumption (P = 0.047). Attitude scores were more likely to differ by gender (P < 0.001). Practice score were differed by gender (P = 0.010), education (P = 0.028), employment (P = 0.028) 0.033), monthly per capita income (P < 0.001), and smoking states (P = 0.028) (Table S1). The distribution of knowledge dimensions revealed that the question with the highest number

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of participants choosing the "Correct" option (K5: "Understanding that OLT requires early medical intervention to prevent progression") was 48.23%. On the contrary, the question with the highest number of participants choosing the "Unclear" option (K7: "Awareness of the potential for cartilage regeneration in OLT") was 60.89% (**Table S2**). Regarding attitudes, a significant portion (56.43%) of respondents recognized the significance of ankle sprains, emphasizing that they should not be taken lightly (A1). Acceptance of minimally invasive

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arthroscopic treatment was shown by a 38.36% of respondents, perceiving it as having minimal trauma and low risk (A7). Nearly half (45.81%) strongly agreed or agreed that it is necessary to visit the hospital for potential OLT after an ankle sprain (A8). A substantial majority (49.54%) expressed their willingness to gain a comprehensive understanding of the emergency treatment and daily management of OLT (A9) (**Table S3**). Participants demonstrated varied behavioral practices, 39.11% of the participants mentioned prioritizing rest to alleviate strain on the ankle and reduce the risk of calcaneal cartilage injury (P3). A substantial 56.61% of respondents reported their inclination to base their treatment decisions on medical advice (P5). Interestingly, 31.48% of participants expressed their openness to considering minimally invasive surgery as a treatment option (P6), while only 5.77% stated they would never consider it (**Table S4**).

Pearson's correlation analysis showed that the correlation between knowledge and attitude (r = 0.076, P = 0.077) was not statistically significant. While, significant positive correlations were observed between knowledge and practice (r = 0.382, P < 0.001) and between attitude and practice (r = 0.220, P < 0.001) (**Table S5**). The SEM analysis indicated a highly favorable model fit, affirming a well-fitting model (**Table S6**). It revealed that employment (employed vs. unemployed, $\beta = 1.33$, P = 0.002), had medical insurance ($\beta = 1.19$, P = 0.019), and with a history of ankle sprains ($\beta = 1.08$, P = 0.009) exhibited positively direct effects, while whether with cartilage injury of the talus (no vs. yes, $\beta = -0.73$, P = 0.001) had negatively direct effects on knowledge. Additionally, knowledge ($\beta = 0.08$, P = 0.032) showed negatively direct effects on attitude. Furthermore, knowledge ($\beta = 0.38$, P < 0.001), attitude ($\beta = 0.18$, P < 0.001), had medical insurance ($\beta = 1.05$, P = 0.045), and had recovered from ankle injury ($\beta = 1.38$, P = 0.025) exhibited positively direct effects on practice (**Table 2** and **Figure 1**). In addition, multivariate logistic regression showed that employed (OR = 1.667,

 5).

95% CI: 1.100-2.528, P = 0.016), history of ankle sprains (OR = 1.603, 95% CI: 1.057-2.434, P = 0.026), and with diffuse tender points around the ankle joint (OR = 1.713, 95% CI: 1.009-2.911, P = 0.046) were independently associated with knowledge (Table S7 and Table **3**). Knowledge (OR = 1.050, 95% CI: 1.007-1.094, P = 0.022) and age (OR = 0.974, 95% CI: 0.947-0.999, P = 0.048) were independently associated with attitude (Table S7 and Table 4). Furthermore, knowledge (OR = 1.114, 95% CI: 1.060-1.171, P < 0.001), attitude (OR = 1.114, 1), κ. .re indepenα. 95% CI: 1.085-1.209, P < 0.001), and with cartilage injury of the talus (OR = 5.584, 95% CI: 1.991-15.813, P = 0.001) were independently associated with practice (Table S7 and Table

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This study highlights that patients with ankle injury demonstrated limited knowledge, negative attitudes, and insufficient proactive behaviors toward OLT. These findings suggest that addressing knowledge deficits and misconceptions is crucial for improving patient outcomes. To our knowledge, this is the first study to comprehensively explore the interrelationship between KAP of patients with ankle injury toward OLT and associated influencing factors using structural equation modeling (SEM). This study suggests our findings support implementing educational programs to improve patient knowledge, addressing misconceptions, and encouraging early intervention and active participation in treatment.

Our study highlights that prior ankle injuries and exposure to related conditions were associated with higher knowledge levels. However, misconceptions about the regenerative capacity of cartilage and the perceived insignificance of ankle sprains remain prevalent. Tailored educational initiatives addressing these gaps could enhance patient understanding and early intervention [14]. Moreover, efforts should focus on dispelling misconceptions and fostering more positive attitudes toward treatment and rehabilitation [15]. Additionally, ensuring access to adequate medical insurance coverage can mitigate financial barriers that might otherwise hinder patients' access to necessary care [16-18].

Our findings highlight several key factors that influenced patient outcomes, including employment status, history of ankle sprains, presence of cartilage injury, and medical insurance coverage. Specifically, employed patients showed better knowledge scores, those with prior ankle sprains demonstrated higher awareness, while patients with cartilage injury had different practice patterns. Additionally, patients with medical insurance (defined as having active health insurance coverage, versus paying out-of-pocket) showed more proactive behaviors in seeking care. Key factors such as employment, financial status, and

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prior injury history were found to influence patients' knowledge, attitudes, and practices. Previous studies have also highlighted the impact of BMI, age, lesion size, and anatomical location on patient-reported outcomes and quality of life in symptomatic OLT cases [19]. Notably, patients with medical insurance demonstrated more proactive behaviors, underscoring the importance of addressing financial barriers to ensure equitable access to care. These results emphasize the importance of tailoring patient education and awareness campaigns to specific demographic and health-related factors to bridge the knowledge gap [14, 20]. The association between medical insurance coverage and practice scores underlines the significance of ensuring financial accessibility to medical care for patients [21, 22]. This study adds to the literature by identifying specific misconceptions and uncertainties regarding OLT among patients. For example, patients often underestimated the chronic nature of the condition or delayed seeking professional care. While some respondents demonstrated a basic awareness of the term "OLT," the specific details regarding the location, function, symptoms, and treatment of OLT were less clear to many. Several misconceptions and uncertainties were evident, such as the misconception that calcaneal cartilage can regenerate and the underestimation of the chronic nature of these injuries. This limited knowledge underscores the need for comprehensive patient education initiatives, emphasizing accurate information about OLT, their management, and potential long-term consequences [16, 23, 24]. Ensuring that patients have a correct understanding of this topic is essential for improving clinical practice, enabling early recognition, prompt intervention, and better long-term outcomes for patients with OLT [25, 26].

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Attitudes toward OLT were influenced by demographic factors, with certain groups more likely to perceive ankle injuries as minor and self-healing. Such perceptions may delay necessary interventions. Encouraging evidence-based treatment choices and addressing these attitudes through patient education is essential for improving clinical outcomes. For example,

 a significant proportion of respondents consider ankle sprains as minor injuries, potentially leading to a lack of attention and delayed intervention when OLT are associated with such sprains. The belief that OLT can heal on their own and that self-medication can expedite recovery might discourage patients from seeking professional medical care promptly. On the positive side, a considerable number of respondents seem to be open to minimally invasive arthroscopic treatment, indicating potential acceptability of this approach in clinical practice. These findings underscore the importance of addressing and redirecting potentially detrimental attitudes through patient education and awareness campaigns. Encouraging a more informed, proactive, and open-minded approach to OLT is essential for improving clinical practice and ultimately patient outcomes [27-29].

Patient practices revealed room for improvement, particularly in seeking timely medical care and adhering to professional treatment advice. While intentions to learn about OLT were evident, translating these intentions into effective actions remains a challenge. Educational efforts should focus on bridging this gap to foster evidence-based management practices. Notably, there is room for improvement in several areas to enhance clinical practice. While a substantial percentage of respondents express their intention to proactively learn about OLT, it is crucial to ensure that these intentions translate into informed actions [30, 31]. Going to the hospital for a check after an ankle injury is a positive practice, but more patients could adopt this approach. However, there is still room for improvement, especially in ensuring that patients choose treatment plans based on medical advice. Overall, these results emphasize the need for patient education that fosters informed decision-making, promotes best practices in the management of OLT, and encourages patients to follow medical recommendations, ultimately contributing to improved clinical outcomes [32, 33].

The observed associations between knowledge, attitudes, and practices reaffirm the interconnected nature of these dimensions. Enhancing patient knowledge may lead to Page 17 of 46

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improved perceptions and more proactive behaviors, which are critical for effective management of OLT. Our findings further suggest that interventions addressing knowledge gaps could have a cascading positive impact on attitudes and practices [34]. Similarly, the correlation between attitude and practice highlights the interconnected nature of these aspects. The SEM analysis reveals that employment, medical insurance, a history of ankle sprains, and the presence of a calcaneal cartilage injury directly impact knowledge. Moreover, knowledge and gender directly affect attitude, and knowledge, attitude, medical insurance, and recovered from ankle injury directly influence practice. These understanding can inform tailored interventions aimed at enhancing clinical practice by addressing these influential factors and fostering more informed, positive, and proactive patient engagement in the management of OLT [35, 36].

This study had limitations, including its single-center, regional focus, potentially limiting the generalizability of findings; the cross-sectional design's inability to establish causality or track changes over time; reliance on self-administered questionnaires, which may introduce response bias and interpretation inaccuracies; the possibility of social desirability bias in participant responses; limited demographic information, hindering the exploration of influential factors; the complexity of interpreting Structural Equation Modeling results; and the absence of long-term follow-up, which could provide insights into changes in patients' KAP.

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In conclusion, this study identifies significant gaps in knowledge, attitudes, and practices related to OLT. By highlighting the role of demographic and clinical factors, such as prior injury history and medical insurance, this study underscores the need for targeted interventions to address misconceptions, improve patient education, and promote timely care. Knowledge, attitude, gender, employment, medical insurance, cartilage injury of the talus, history of ankle sprains, and recovered from ankle injury might have effect on their KAP. To

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improve patient outcomes and care in this context, targeted interventions are warranted. Healthcare providers should focus on increasing patients' knowledge about OLT, potentially through educational programs and materials. Moreover, efforts should be made to foster a more positive attitude among patients by addressing their concerns and misconceptions. Encouraging early intervention and active participation in treatment and rehabilitation should be a key objective. Lastly, it is crucial to emphasize the significance of medical insurance coverage for these injuries, ensuring that financial barriers do not hinder access to appropriate care.

Thi	s work has been carried out in accordance with the Declaration of Helsinki (2000) of the
Wo	orld Medical Association. This study was approved by the Ethic Committee of the Nine
Pec	ople's Hospital of Wuxi, Soochow University (KS2023070), and all participants provide
wri	tten informed consent.
Th	e Patient and Public Involvement statement
No	patient or public involved in this study.
Co	nsent for publication
No	t applicable
Av	ailability of data and materials
All	data generated or analyzed during this study are included in this article.
Co	mpeting interests
The	e authors declare that they have no competing interests.
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Au	thors' contributions
Xu	eming Chen and Chang She carried out the studies, participated in collecting data, a
dra	fted the manuscript. Xingfei Zhang and Wencheng Wang performed the statistical analys
and	l participated in its design. Xueming Chen and Yuxuan Zhang participated in acquisition
ana	lysis, or interpretation of data and draft the manuscript. All authors read and approved t

None.

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Table 1. KAP	scores
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	Total score	Possible range	Percentage, %
Knowledge	17.28 ± 4.84	0-28	61.71
Attitude	29.44 ± 4.21	9-45	65.42
Practice	18.01 ± 5.39	6-30	60.03

*Percentage = Total score/The maximum value of possible range $\times 100\%$.

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		Coef.	P> z
Knowledge <-			• •
-	Employment (Employed vs. Unemployed)	1.33	0.002
	Income (low vs. higher)	-0.22	0.137
	Medical insurance (with vs. without)	1.19	0.019
	Frequent participation in sports (with vs. without)	0.32	0.459
	History of ankle sprains (with vs. without)	1.08	0.009
	Diffuse tender points around the ankle joint (with vs. without)	0.26	0.321
	Cartilage injury of the talus (without vs. with)	-0.73	0.001
Attitude <	-		
	Knowledge	0.08	0.032
	Employment (Employed vs. Unemployed)	-0.40	0.302
	Age	-0.02	0.256
	Gender (male vs. female)	-1.81	0
	Education (higher vs. low)	0.18	0.527
	Smoking (never vs. yes)	0.13	0.654
Practice <	-		
	Knowledge	0.38	0
	Attitude	0.18	0
	Income (low vs. higher)	-0.05	0.752
	Medical insurance (with vs. without)	1.05	0.045
	Diffuse tender points around the ankle joint (with vs. without)	-0.46	0.087
	Cartilage injury of the talus (without vs. with)	-0.20	0.386
	Gender (male vs. female)		0.073
	Smoking (never vs. yes)	0.16	0.669
	Alcohol consumption (yes vs. never)	-0.17	0.539
	Recovered from ankle injury (yes vs. no)	1.38	0.025

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Table 3. Multivariate Logistic Regression Analysis for Knowledge, Attitude, Practice
Multivariata Analysia

D' '	X7 • 11	Multivaria	ale Analysis	
Dimension	Variables	OR	95%CÎ	Р
Knowledge				
C	Employment			
	Employed	1.667	1.100-2.528	0.016
	Unemployed	Reference		
	Monthly Per Capita Income, Yuan			
	<2,000	Reference		
	2,000-5,000	1.378	0.672-2.962	0.394
	5,000-10,000	1.734	0.814-3.849	0.163
	>10,000	1.338	0.567-3.224	0.509
	Prefer not to disclose	0.798	0.374-1.767	0.566
	Medical Insurance			
	Yes	1.578	0.933-2.753	0.097
	No	Reference		
	Frequent Participation in Sports			
	Yes	1.343	0.881-2.040	0.168
	No	Reference		
	History of Ankle Sprains			
	Yes	1.603	1.057-2.434	0.026
	No	Reference		
	Diffuse Tender Points Around the	2		
	Ankle Joint			
	With	1.713	1.009-2.911	0.046
	Without	Reference		
	Unclear	1.097	0.633-1.880	0.737
	Cartilage Injury Of The Talus			
	Yes	0.793	0.283-2.099	0.646
	No	Reference		
	Unclear	0.464	0.293-0.726	0.001

Attitudo	Variables	Multivar	Multivariate Analysis		
Attitude	v arrabits	OR	95%CI	Р	
	Knowledge	1.050	1.007-1.094	0.02	
	Age	0.974	0.947-0.999	0.04	
	Gender				
	Male	0.625	0.368-1.041	0.0	
	Female	Reference			
	Education				
	Junior high school or below	Reference			
	High school / Vocational school	1.400	0.620-3.185	0.4	
	College / Bachelor's degree	1 1 3 4	0 537-2 480	0.74	
	Master's degree and above	1 173	0 282-4 158	0.8	
	Employment	111,0	0.202	0.0	
	Employed	0.692	0 440-1 079	0.10	
	Unemployed	Reference	0.770 1.077	0.10	
	Smolting	Kelefenet			
	Never smoked	Pafaranac			
		1 207	0 704 2 691	0.2	
	Former smoker	1.30/	0.704-2.081	0.5	

Practice	Variables	Multivariate Analysis		
1140000		OR	95%CI	Р
	Knowledge	1.114	1.060-1.171	< 0.00
	Attitude	1.144	1.085-1.209	< 0.00
	Age			
	Gender			
	Male	0.583	0.297-1.107	0.107
	Female	Reference		
	Monthly Per Capita Income, Yuan			
	<2 000	Reference		
	2,000-5,000	1 438	0 599-3 790	0 436
	5,000-10,000	2 541	1 035-6 847	0.051
	>10 000	2.511	0 887-7 371	0.091
	Prefer not to disclose	1 208	0.491-3.240	0.697
	Smoking	1.200	0.191 5.210	0.072
	Never smoked	Reference		
	Former smoker	0.698	0 231-1 898	0 498
	Current smoker	0.965	0.394-2.281	0.93
	Alcohol Consumption	0.905	0.574 2.201	0.75
	Never consumed alcohol	Reference		
	Former drinker	0 791	0 371-1 612	0.530
	Current drinker	0.771	0.337_1 190	0.550
	Medical Insurance	0.045	0.557-1.170	0.100
		1 /31	0 775_2 767	0.26
	No	Pafaranca	0.775-2.707	0.20
	Diffuse Tender Deints Around the	Reference		
	Ankle Joint			
	With	0.624	0 222 1 172	0.15
	Without	D.024	0.322-1.173	0.134
	Unaloar		0 226 1 128	0.12
	Chicical Soverity of Antile Injury	0.018	0.520-1.158	0.15
	Severity of Ankle Injury			
	Very severe, unable to walk			
	Noderately severe, pain with pressure			
	Not very severe, slight pain with			
	Constitue of the Tabas			
	Carthage Injury Of The Talus	5 504	1 001 15 012	0.00
	With	5.584 D = f = = = = =	1.991-15.813	0.00
	W Ithout	Reference	0.572 1.622	0.00
	Unclear	0.966	0.5/2-1.623	0.890
	Kecovered from Ankle Injury	1 000	0.010 4.075	0.10
	Yes	1.888	0.910-4.275	0.104
	No	Keterence		



Sociodemographic cha	aracteristics an Overall	d KAP scores Knowledge		Attitude	2 on (ing fo	Practice	
Variables	<u>N(%)</u>	Mean ± SD	Р	Mean ± SD		Mean ± SD	Р
Age	27.18 ± 11.01	17.28 ± 4.84		29.44 ± 4.21	es -	18.01 ± 5.39	
Gender			0.492				0.010
Male	151 (28.12)	16.88 ± 4.72		28.16 ± 4.08	ited	16.99 ± 5.72	
Female	386 (71.88)	17.44 ± 4.88		29.94 ± 4.15	l to	18.40 ± 5.21	
BMI, kg/m ²	22.21 ± 4.92				tex tex		
Education			0.530		0.475 ar be		0.028
Junior high school or below	84 (15.64)	16.56 ± 4.67		28.51 ± 4.15	ieu id fr	17.23 ± 5.09	
High school / Vocational school	74 (13.78)	17.36 ± 5.14		29.51 ± 4.32	r (A lata	17.51 ± 5.06	
College / Bachelor's degree	361 (67.23)	17.42 ± 4.82		29.65 ± 4.17		18.13 ± 5.51	
Master's degree and above	18 (3.35)	17.67 ± 4.88		29.17 ± 4.46	nin S)	21.17 ± 4.74	
Ethnicity			0.361		0.981 🖕 📓		0.089
Han ethnicity	460 (85.66)	17.37 ± 4.93		29.43 ± 4.25	vi tr	18.14 ± 5.46	
Ethnic minority	77 (14.34)	16.75 ± 4.25		29.47 ± 3.94	aini <mark>en.</mark>	17.19 ± 4.92	
Employment			<0.001		0.180 💆		0.033
Employed	202 (37.62)	18.24 ± 5.22		29.13 ± 4.22	an <mark>C</mark>	18.58 ± 5.13	
Unemployed	335 (62.38)	16.71 ± 4.50		29.62 ± 4.19	d si	17.66 ± 5.52	
Monthly Per Capita Income,			< 0.001		0.771 <u>n</u> <u>n</u>		< 0.001
Yuan					Jun ar t		
<2,000	59 (10.99)	16.54 ± 4.82		28.61 ± 4.09	e 1	16.29 ± 5.14	
2,000-5,000	158 (29.42)	17.44 ± 5.05		29.41 ± 3.66	0, 2 1110	18.15 ± 5.31	
5,000-10,000	107 (19.93)	18.75 ± 4.65		29.36 ± 4.37	025 log	19.78 ± 4.44	
>10,000	57 (10.61)	18.26 ± 5.19		29.56 ± 5.01	les.	19.18 ± 5.91	
Prefer not to disclose	156 (29.05)	16.04 ± 4.28		29.80 ± 4.33	Ag	16.87 ± 5.57	
Smoking			0.087		0.115 R		0.028
Never smoked	406 (75.61)	17.56 ± 4.84		29.63 ± 4.11	e B	18.34 ± 5.24	
Former smoker	55 (10.24)	16.67 ± 4.44		29.11 ± 4.41	ibli	16.44 ± 6.21	

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4	Current smolver	76(1415)	16.25 ± 4.07		28.64 ± 4.51	ıdin	17.24 ± 5.40	
5	Alashal Consumption	70 (14.13)	10.23 ± 4.97	0.047	26.04 ± 4.31	o 200 ≢ 9	17.34 ± 3.40	0 106
6 7	Alconol Consumption	211(57.01)	1770 + 400	0.047	20.(4 + 4.22)	0.390 ο ω	10 42 + 5 22	0.106
8	Never consumed alconol	311(57.91)	$1/./0 \pm 4.90$		29.64 ± 4.33	use Ise	18.43 ± 5.32	
9	Former drinker	83 (15.46)	$1/.02 \pm 4.41$		29.14 ± 4.14	l 20 s re	$1/.52 \pm 5.23$	
10	Current drinker	143 (26.63)	16.53 ± 4.88	0.00 <i>5</i>	29.18 ± 3.96	gne gne	$1/.36 \pm 5.58$	0.000
11	Medical Insurance			0.005				0.003
12	Yes	429 (79.89)	17.56 ± 4.92		29.52 ± 4.14	tot	18.37 ± 5.34	
13	No	108 (20.11)	16.18 ± 4.36		29.12 ± 4.47	ext	16.56 ± 5.40	
14	Frequent Walking on Uneven			0 299		0.940 m er de		0 792
15	Surfaces			0.277		d i f		0.172
16 17	Yes	200 (37.24)	17.58 ± 4.78		29.43 ± 4.60	ata	18.01 ± 5.76	
17	No	337 (62.76)	17.11 ± 4.87		29.45 ± 3.96	mi Bet	18.00 ± 5.17	
19	Frequent Participation in			0.337		0.459 h .		0.420
20	Sports					g, /		
21	Yes	183 (34.08)	17.57 ± 5.35		29.52 ± 4.28	Alt	18.21 ± 5.84	
22	No	354 (65.92)	17.13 ± 4.55		29.40 ± 4.17	rain	17.90 ± 5.15	
23	History of Ankle Sprains	()		0.026		0.506		0.034
24	Yes	221 (41 15)	1788 ± 488		2933 ± 434	a <u>c</u>	18.52 ± 5.38	
25	No	316 (58 85)	16.86 ± 4.78		29.52 + 4.12	nd om	17.64 + 5.38	
26	Unfixed Tender Points	510 (50.05)	10.00 - 1.70	0.020	29.02 - 1.12	0.200 ^{Sin} 9	17.01 - 5.50	0.002
27	Around the Ankle Joint			0.020		0.200 nila		0.002
20	With	108(20.11)	18.36 ± 4.08		29.25 ± 4.40	ine r te	1875 ± 482	
30	Without	300(55.87)	10.30 ± 4.90 17.16 ± 5.03		27.25 ± 4.40 20.65 ± 4.22	10,	18.75 ± 4.02 18.27 ± 5.55	
31	Unaloar	120(33.87)	17.10 ± 5.03 16.67 ± 4.10		29.03 ± 4.22 20.11 ± 4.02	20	16.27 ± 5.33 16.76 ± 5.20	
32	Sevenity of Ankle Iniumy	129 (24.02)	10.07 ± 4.10	0 2 2 2	29.11 ± 4.02	0 741 e	10.70 ± 3.30	0.440
33	Severity of Ankle Injury	(1, 20)	16.04 ± 4.62	0.525	20.49 ± 4.09	0./41 <u>s</u> at	10.04 ± 4.01	0.440
34	Very severe, unable to walk	23 (4.28)	10.04 ± 4.02		29.48 ± 4.98	lge	19.04 ± 4.81	
35	Moderately severe, pain with	66 (12.29)	10.07 ± 5.40		28.88 ± 3.80	nce	18.33 ± 4.81	
36	pressure	× ,	17 44 4 77		20.52 + 4.22	B	17.00 + 5.50	
3/	Not very severe, slight pain with	448 (83.43)	$1/.44 \pm 4./5$		29.52 ± 4.23	blic	$1/.90 \pm 5.50$	
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Cartilage Injury Of The Talus			<0.001		1udin 0 192		<0.001
Ves	21 (3 91)	19.00 ± 4.72	\$0.001	28.05 ± 3.89	0.172 g fc	20.14 ± 6.21	\$0.001
No	296 (55 12)	17.00 = 1.72 17.87 + 5.11		20.03 = 5.09 29.71 + 4.40	∞ بک	1857 + 544	
Unclear	220 (40 97)	16.33 ± 4.29		29.71 = 1.10 29.21 ± 3.94	oril Ses	17.05 ± 5.11	
Recovered From Ankle Injury	22 0 (10.37)	10.55 - 1.27	0.025	27.21 - 5.71	0 493 0 20	17.00 - 0.11	0.005
Yes	463 (86.22)	17.48 ± 4.76	0.020	29.43 ± 4.25	nen ate	18.26 ± 5.33	0.000
No	74 (13.78)	16.07 ± 5.20		29.50 ± 3.94	d to	16.43 ± 5.57	
Underlying or Chronic					t Su		
Diseases					upe (tai		
Hypertension			0.509		0.500 de le d		0.431
Yes	28 (5.21)	17.25 ± 5.05		28.61 ± 5.32	rom Ir (/ Jata	18.82 ± 5.56	
No	509 (94.79)	17.28 ± 4.83		29.49 ± 4.14	i mi	17.96 ± 5.39	
Hyperlipidemia			0.845		0.071 h		0.151
Yes	7 (1.30)	17.29 ± 5.71		26.71 ± 3.73	'bm 9, /	15.71 ± 3.09	
No	530 (98.70)	17.28 ± 4.83		29.48 ± 4.20	Al tr	18.04 ± 5.41	
Diabetes			0.205		0.207 🖺 📍		0.975
Yes	8 (1.49)	14.63 ± 1.79		31.63 ± 4.87	ing	17.88 ± 5.44	
No	529 (98.51)	17.32 ± 4.86		29.41 ± 4.19	, an	18.01 ± 5.40	
Tumor, etc.			0.270		0.574 G		0.133
Yes	4 (0.74)	14.00 ± 2.16		30.00 ± 4.24	imil	13.50 ± 5.97	
No	533 (99.26)	17.31 ± 4.85		29.44 ± 4.21	Jun ar t	18.04 ± 5.38	
Other			0.566		0.345 <u>e</u>		0.794
Yes	39 (7.26)	17.31 ± 4.88		29.92 ± 2.99	0, 2 1110	17.92 ± 4.83	
No	498 (92.74)	17.28 ± 4.84		29.40 ± 4.29	025 logi	18.01 ± 5.44	
None			0.224		0.821 g a		0.301
Yes	422 (78.58)	17.47 ± 4.90		29.49 ± 4.19	Age	18.14 ± 5.36	
No	115 (21.42)	16.61 ± 4.55		29.27 ± 4.36	enc	17.52 ± 5.49	
Prefer not to disclose			0.070		0.116 m		0.026
Yes	51 (9.50)	16.24 ± 4.40		28.61 ± 4.14	ibli	16.59 ± 5.63	
No	486 (90.50)	17.39 ± 4.87		29.53 ± 4.21	ogr	18.15 ± 5.35	
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1 2 3 4 5 6 7 8	Note: Quantitative variables are represented as $M \pm SD$, and categorical variables are represented as $N(\%$ for uses the second secon	
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tems	uding for	S S Yes/Correc t	No/ Incorrec	Unc
X1. Do you have a good understanding of Osteochondral Lesions of the Talus?	uses	23.46	76.54	
K2. Calcaneal cartilage is a transparent tissue located on the surface of the ankle joint. It has a smoot lastic surface, which can reduce friction and impact between the bones at both ends of the ankle providing protection for the ankle joint.	h and to	44.88	5.03	50.
K3. Calcaneal cartilage injury refers to damage or fracture of the cartilage occurring at the top of the nkle joint.	infection and	40.04	5.40	54.
4. The main symptoms of Osteochondral Lesions of the Talus include joint pain and swelling.	and	45.81	5.77	48.
K5. Ankle sprains or improper jumping and landing can often lead to Osteochondral Lesions of the T	alu	48.23	5.21	46.
K6. High arches are more susceptible to Osteochondral Lesions of the Talus than flat feet.	a m	31.84	16.57	51.
K7. Calcaneal cartilage can regenerate.	inii	21.79	17.32	60.
K8. The calcaneus and the distal ends of the tibia and fibula together form the ankle joint, which argest weight-bearing joint in the human body.	is the	39.11	5.59	55.
K9. Calcaneal cartilage injury is one of the main causes of chronic ankle pain.	rair	40.97	5.96	53.
(10. Clinical manifestations of Osteochondral Lesions of the Talus often include pain in the ankle fter weight-bearing and exercise, which can be relieved by rest.	jođint a	40.60	8.38	51.
X11. Osteochondral Lesions of the Talus are relatively easy to heal, and symptoms do not recur.	nd :	22.53	21.97	55.
K12. In case of emergency treatment for cartilage injury, it is recommended to rest, apply cold con ice), immobilize with a plaster or splint, and elevate the affected limb (RICE principle).	npress 9	46.93	5.21	47.
K13. More severe Osteochondral Lesions of the Talus may require ankle fusion or ankle replace urgery.	emont a	39.29	5.03	55.
K14. Osteochondral Lesions of the Talus are often overlooked at the onset of ankle sprains. After r for a period and resuming activities, pain or swelling may recur.	esting give	41.71	4.84	53.

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1 2 3	Table S3. Attitude Dimension, %		Ċ	2024-0874 iaht. inclu		
4 5	Itoma	Strongly	1 7 1 2 2	din 0 Nortugi	Diag grad	Strongly
6 7	A1 L consider ankle sprains to be minor injuries so L don't nay much	Agree	Agree		Disagree	Disagree
8	attention to them.	7.26	7.82	ар 28.49	36.69	19.74
9 10	A2. I believe that Osteochondral Lesions of the Talus can heal on their own.	5.03	13.59	s relate	30.17	13.59
11 12 13	A3. I think that after an ankle injury, self-medication can accelerate recovery, and there is no need to go to the hospital.	4.84	8.01	nent Su Subort S	36.87	18.81
14 15	A4. I believe that after an ankle injury, massage can improve blood circulation.	11.17	24.21	aded f	21.04	10.80
16 17	A5. I think that the cost of examinations like magnetic resonance imaging (MRI) for Osteochondral Lesions of the Talus is too expensive.	12.66	22.91	ata m ABI	15.08	9.50
18 19 20	A6. I think that surgery for Osteochondral Lesions of the Talus carries too much risk, and conservative treatment is better.	5.40	17.50		16.01	9.87
20 21 22	A7. Minimally invasive arthroscopic treatment has minimal trauma and low risk, and I am more accepting of it.	9.31	29.05		9.50	6.89
23 24 25	A8. I believe that ankle sprains should not be taken lightly, and it is necessary to go to the hospital to check for possible Osteochondral Lesions of the Talus.	15.27	30.54		8.19	6.89
26 27 28	A9. I am willing to have a comprehensive understanding of the emergency treatment and daily management of Osteochondral Lesions of the Talus.	16.95	32.59	similar Milar	7.45	6.15
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	For peer review only - http://bmjopen.bmj.c	com/site/about/g	guidelines.xhtml	e 10, 2025 at Agence Bibliographique de l technologies.		
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Always/Strongly	Often/Agree	Sometimes/Neutra	4- 87 24 20 Barely/Disagree	Never/Strongly
7.82	7.45	<u>រ</u>	Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ	18.62
12.66	8.57	30.54 tegen	1 2025. 31.28	16.95
18.81	20.30	28.86 28.86	20.86	11.17
16.01	13.78	27.93 mini	22.53	19.74
32.22	24.39	ي 21.79 21.79	13.59	8.01
11.55	19.93	52.89 training	9.87	5.77
		, and similar technologies.	j.com/ on June 10, 2025 at Agence Bibliographiqu	
	Always/Strongly Agree 7.82 12.66 18.81 16.01 32.22 11.55	Always/Strongly AgreeOften/Agree7.827.4512.668.5718.8120.3016.0113.7832.2224.3911.5519.93	Always/Strongly AgreeOften/AgreeSometimes/Neutration Sometimes/Neutration 32.777.827.4532.7712.668.5730.5418.8120.3028.8616.0113.7827.9332.2224.3921.7911.5519.9352.89	Always/Strongly Agree Often/Agree Sometimes/Neutral of the Agree Barely/Disagree 7.82 7.45 32.77 Uses related to use and data mining to use related to use and data mining 12.66 31.28 18.81 20.30 28.86 20.86 16.01 13.78 27.93 22.53 32.22 24.39 21.79 13.59 11.55 19.93 52.89 9.87

	Knowledge	Attitude	Practio
Knowledge	1		
Attitude	0.076 (0.077)	1	
Practice	0.382 (<0.001)	0.220 (<0.001)	1

Model 1	Ref	Measured results
RMSEA	<0.08 good	0.044
SRMR	<0.08 good	0.022
TLI	>0.8 good	0.772
CFI	>0.8 good	0.897

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	Table S7. Univariate Logistic Regression Analysis for Knowledge, Attitude, Practice Image: Content of the second seco					
	Dimension	Variables	OR	Analysis $\overline{3}^{\circ}$ $\stackrel{\circ}{}$	Р	
	Knowledge		- OR		-	
	8-	Age	1.002	0.985-1.	0.845	
		Gender		20 S rei		
		Male	0.878	0 573-1 2 29:5	0 545	
		Female	Reference			
		BMI	0 993	0.955-1 8 2	0 723	
		Education Ob	0.775	t sup	0.725	
		Junior high school or below	Reference	and		
		High school / Vocational school	1 551	0 756-3 ສີ 201	0 233	
		College / Bachelor's degree	1.586	0.916-2 8	0.233	
		Master's degree and above	2 333	0 764-6 3 46	0.125	
		Fthnicity	2.555		0.125	
		Han ethnicity	1 405	0 814-2 \$31	0 238	
		Ethnic minority	Reference		0.250	
		Emile millerity Fmployment	Reference	inir <mark>b</mark>		
		Employed	1 006	1 366-2 927	<0.001	
		Unemployed	1.990 Reference		<0.001	
		Monthly Dor Conita Incomo Vuon	Kelefence	u si		
		Nontiny Ter Capita Income, Tuan	Deference			
		2,000	1 697		0.142	
		5,000-5,000	1.067		0.143	
		>10,000	2.577	0.020 4960	0.020	
		>10,000	2.004	0.920-4.0082	0.082	
		Prefer not to disclose	0.774	0.3/5-1.001a	0.497	
		Smoking Name and a log d	D - f	Age		
			Reference	0 071 1 1009	0 1 1 1	
		Former smoker	0.569	0.2/1-1.1000	0.111	
		Current smoker	0.868	0.494-1.4/8	0.612	
		Alcohol Consumption		ogr		
		Never consumed alcohol	Keterence	apt		
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1			-2024 right,		
2			ing 08		
3	Former drinker	0.821	0.473-1.2882	0.471	
4	Current drinker	0.668	0.421-1.943	0.081	
5	Medical Insurance		on ; g fo		
7	Yes	1.776	1.082-3. 2 20	0.028	
8	No	Reference	ls en		
9	Frequent Walking on Uneven Surfaces		s rei		
10	Ves	1 253	0 854-1 8 24.	0 247	
11	No	Reference		0.217	
12	Frequent Participation in Sports	Reference	to t		
13	V _{ac}	1 532		0.030	
14	I CS	1.552 Deference		0.030	
15	NU History of Amble Sausing	Kelelence	d d		
16 17	History of Ankle Sprains	1 707	ata · om	0.004	
17	Yes	1./2/ D.C		0.004	
19	No	Reference	nin S)		
20	Unfixed Tender Points Around the Ankle Joint		9, / m		
21	With	1.673	1.053-2. 6 47 <u></u>	0.028	
22	Without	Reference	rair ^e n		
23	Unclear	0.701	0.425-1. 3 32	0.154	
24	Severity of Ankle Injury		ູ່ 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,		
25	Very severe, unable to walk	0.488	0.140-1. ā 28 <mark>3</mark>	0.200	
26	Moderately severe, pain with pressure	0.804	0.436-1.5219	0.468	
27	Not very severe, slight pain with pressure	Reference	יוום		
28	Cartilage Injury Of The Talus		r te		
29	Yes	1 1 1 9	0 431-2 2440	0.809	
31	No	Reference	20	0.009	
32	Unclear	0 442	0.291-0	<0.001	
33	Becovered From Ankle Injury	0.442	s.	\$0.001	
34	Vos	1 571	0.802.2.0126	0 122	
35	I CS	1.J/1 Deference	0.092-2.9138	0.132	
36	NU Underkring or Chronic Discosso	Reference	e B		
37	Underlying or Unronic Diseases		ibi.		
38	Hypertension	0.005	0 212 1 0 40	0.(20)	
39	Yes	0.805	0.312-1.849 <u>a</u>	0.628	
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41 40			ue		
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2				t, ii -0	
3		No	Reference	10 lu	
4		Hyperlinidemia		ıdir	
5		Ves	0.977	0 139-4 3849	0.978
6		No	Reference	0.137-4. đ ~	0.978
/		Other	Kererenee		
8		Vac	0.056	ຮ່ຽວ≓≕ 0.446.1 ຄ 4912	0.004
9 10		Yes	0.936	0.440-1.2/5102	0.904
10		NO	Reference	ted D	
12		None	1 (21	tent	0.050
13		Yes	1.621	1.007-2.585	0.053
14 _		No	Reference	t ande	
15 _	Attitude	·		nd f	
16		Knowledge	1.042	1.003-1. ૹૻૣ ૹ૾ૣૼ 4 g	0.036
17		Age	0.968	0.947-0. 3827	0.001
18		Gender		inii	
19		Male	0.596	0.377-09222	0.023
20		Female	Reference	≥ ⊐ji	
21		BMI	1 031	0 993-1 🗟 69	0 107
22		Education			
24		Junior high school or below	Reference	g, aj,	
25		High school / Vocational school	1 589	$0.742-3$ $\frac{1}{2}54\frac{9}{2}$	0.235
26		College / Bachelor's degree	2 1 2 3		0.255
27		Master's degree and above	1 314		0.667
28		Ethnicity	1.514	0.537-4.9 55	0.007
29		Lumery Hen athricity	1.062		0 828
30		Fall etimicity	1.062 Defense	0.02/-1.3582	0.828
31 22		Ethnic minority	Kelerence	025	
32		Employment			0.000
34		Employed	0.637	0.424-0.947	0.028
35		Unemployed	Reference	enc	
36		Monthly Per Capita Income, Yuan		ě	
37		<2,000	Reference	ЗіЫ	
38		2,000-5,000	1.328	0.656-2.844 <mark>6</mark>	0.446
39		5,000-10,000	1.747	0.838-3.832	0.148
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41				he	
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2			in 0		
3	>10,000	1.958	0.854-4.832	0.117	
4	Prefer not to disclose	1.741	0.869-3.5018	0.131	
5	Smoking		ig f		
6 7	Never smoked	Reference	or c		
7	Former smoker	1 146	0.616-2	0.658	
9	Current smoker	0.486	0.248-0 \$	0.036	
10	Alashal Consumption	0.400	0.240-0.000025	0.020	
11	Aiconor Consumption	Deference	ema. De		
12		Reference		0.220	
13	Former drinker	0.707	0.392 - 1.526 = 0.0000 = 0.00000 = 0.0000 = 0.00000 = 0.00000 = 0.00000 = 0.00000 = 0.00000 = 0.00000000	0.230	
14	Current drinker	0.957		0.843	
15	Medical Insurance		d ieu fi		
16	Yes	1.234	0.769-2. \$ \$\$79	0.394	
17	No	Reference			
18	Frequent Walking on Uneven Surfaces		ini S <mark>te</mark>		
19	Yes	1.281	0.871-1 \$ 80 	0.206	
20	No	Reference	Alt		
27	Frequent Participation in Sports		ber		
23	Yes	1.335	0.902-1. 9 69	0.146	
24	No	Reference	<u> </u>		
25	History of Ankle Sprains		nd g		
26	Yes	0.873	0.593-1.3790	0.489	
27	No	Reference			
28	Unfixed Tender Points Around the Ankle Joint		une Ir te		
29	With	0.717	0 427-1 750	0 196	
30 21	Without	Reference	0.427 1.373,2	0.170	
37	Unclear		0 505 19.765	0 360	
33	Sovority of Ankla Injury	0.809		0.309	
34	Sever against unable to walk	1.004	0.412.2626	0.847	
35	Very severe, unable to walk	1.094	0.412-2.02/9	0.847	
36	Moderately severe, pain with pressure	0.86/	0.4/0-1.5346	0.636	
37	Not very severe, slight pain with pressure	Reference	sibli		
38	Cartilage Injury Of The Talus				
39	With	0.506	0.143-1.411 <u>a</u>	0.231	
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2			-08	
5 Д	Without	Reference	51uc	
5	Unclear	0.699	0.470-1.932	0.074
6	Recovered From Ankle Injury		y fo	
7	Yes	1.267	0.731-2. 2 90 ×	0.414
8	No	Reference	ses	
9	Underlying or Chronic Diseases		s reig	
10	Hypertension		late	
11	Yes	0.837	0 324-1 \$	0 690
12	No	Reference		
13	Hyperlinidemia	iterenere	ext	
14	Vec	0/18		0.422
15	No.	0.410 Deference	0.022-2.00/2 dur fr	0.422
10	NU Other	Reference	om ata	
17	Other	0.005		0.000
19	Yes	0.995	0.463-1.3	0.988
20	No	Reference	9. 6	
21	None			
22	Yes	1.031	0.656-1. <u>ब</u>49<mark>5</mark>	0.898
23	No	Reference	Jing	
24	Practice		у, а	
25	Knowledge	1.145	1.096-1. 4 98 <mark>3</mark>	< 0.001
26	Attitude	1.151	1.095-1.3129	< 0.001
27	Age	1.000	0.982-1.518	0.967
28	Gender		r te	
29	Male	0 481	0 284-0 3850	0.005
31	Female	Reference		0.000
32	BMI	0.000	0 058 1 H / 05	0.969
33	DMI Education	0.999	0.938-1.0040a	0.909
34	Lunior high school or holow	Deference	Age	
35	Junior nign school of below	Reference		0 (77
36	High school / Vocational school	1.175	0.548-2.5240	0.6//
37	College / Bachelor's degree	1.158	0.657-2.136	0.623
38	Master's degree and above	2.508	0.818-7.392	0.097
39	Ethnicity		rap	
40			hiq	
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Han ethnicity	1 547		0 177	
Ethnic minority	Reference	dir 2	0.177	
Employment		ng t		
Employed	1.347	0.892-2. 9 26	0.154	
Unemployed	Reference	is pril		
Monthly Per Capita Income, Yuan		l 200 s reig		
<2,000	Reference	late		
2,000-5,000	1.814	0.821-4.4489	0.162	
5,000-10,000	3.232	1.446-8. 8 ឆ្	0.007	
>10,000	2.942	1.192-7.8578	0.023	
Prefer not to disclose	1.275	0.562-3. āš	0.578	
Smoking		dat fror		
Never smoked	Reference	a A B h		
Former smoker	0.423	0.171-0. ቜ@6	0.041	
Current smoker	0.544	0.271-1 .9 15	0.069	
Alcohol Consumption		Alt		
Never consumed alcohol	Reference	raii		
Former drinker	0.587	0.308-1 .jg57 g	0.088	
Current drinker	0.510	0.300-0.33385	0.010	
Medical Insurance		nd :		
Yes	1.911	1.103-3. 5 01g	0.027	
No	Reference	ilar L		
Frequent Walking on Uneven Surfaces		ne . tec		
Yes	0.964	0.632-1.3580	0.863	
No	Reference	202		
Frequent Participation in Sports		5 a gies		
Yes	0.913	0.591-1.394	0.678	
No	Reference	yen		
History of Ankle Sprains		ce l		
Yes	1.158	0.769-1.737 8	0.481	
No	Reference	liog		
Unfixed Tender Points Around the Ankle Joint		Jrap		
		hiq		
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2			in 0	
3	With	0.799	0.467-1. 2 312	0.400
4	Without	Reference	idir 102	
5	Unclear	0 513	$0.292-0\frac{6}{8}68^{9}$	0.016
6 7	Severity of Ankle Injury	0.010		0.010
/ o	Very severe unable to walk	0.679	0 194-1 5	0 491
0	Moderately severe, pain with pressure	0.079	0.197 - 1.8 - 50 = 0.400 + 1.24 - 26	0.477
10	Not years assere alight noin with measure	0.791 Deference		0.477
11	Not very severe, slight pain with pressure	Kelerence	ted. D	
12	Cartilage Injury Of The Talus	0 506	toent	0.027
13	With	2.586	1.039-6.30	0.037
14	Without	Reference	t ar	
15	Unclear	0.556	0.355-0. &@	0.009
16	Recovered from Ankle Injury		ron dat	
17	Yes	2.066	1.071-4. 3@5	0.042
18	No	Reference		
19	Underlying or Chronic Diseases		ng,	
20	Hypertension		A B	
21	Ves	1 370	0 555-3 🛱 85	0 465
22	No	Reference	nii b	0.100
25	Othors	Reference	, je,	
24	Vac	1.011	0.441.23100	0.070
26	I CS	1.011 D.C	0.441-2.010	0.979
27	N0	Keierence		0.550
28	None	1.162	0.712-1.펉54드	0.558
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