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## TINNITUS PERSPECTIVES AMONG PHYSICIANS OF KAZAKHSTAN

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### Abstract

**Introduction.** Recent research in the field of tinnitus shows an increase in the incidence, which is associated with lifestyle changes in people. Despite the growth, there is a lack of guidelines for the management of patients with tinnitus. Also, attention is paid to the importance of doctors' awareness of tinnitus and teamwork in providing care to patients with tinnitus.

The **aim** is to study the experience of physicians in the management of patients with tinnitus.

**Methods.** We developed a questionnaire that was distributed among ENT doctors and neurologists in Kazakhstan. The survey was conducted through WhatsApp chats of doctors. The survey was conducted in a Google form, as well as in a paper version. The survey period was the second half of 2022.

**Results.** Most of the ENT specialist consider tinnitus as audiological problem, and less psychological. Physicians identify most of patient experienced tinnitus for more than three months and tinnitus is associated with its laterality, and concomitant dizziness. Both types of specialists had the least associated anxiety or depression. To better management of patient with tinnitus there is necessary to develop internet site as well as advanced training among specialist.

**Conclusion.** Our results showed the need for training of physicians of different specialties in the management of patients with tinnitus, which in the future will improve the provision of teamwork.

**Keywords:** *tinnitus, ENT, neurologist, health care, management.*

### Резюме

## ПЕРСПЕКТИВЫ ЛЕЧЕНИЯ ШУМА В УШАХ СРЕДИ ВРАЧЕЙ КАЗАХСТАНА

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**Введение.** Недавние исследования в области шума в ушах показывают рост заболеваемости, что связано с изменением образа жизни людей. Несмотря на рост, отсутствуют рекомендации по ведению пациентов с шумом в ушах. Также уделяется внимание важности осведомленности врачей о шуме в ушах и совместной работы при оказании помощи пациентам с шумом в ушах.

**Цель** состоит в том, чтобы изучить опыт врачей в ведении пациентов с шумом в ушах.

**Методы.** Мы разработали анкету, которая была распространена среди ЛОР-врачей и неврологов Казахстана. Опрос проводился через чаты врачей в WhatsApp. Опрос проводился в форме Google, а также в бумажной версии. Периодом исследования была вторая половина 2022 года.

**Результаты.** Большинство ЛОР-специалистов рассматривают шум в ушах как аудиологическую проблему, и в меньшей степени как психологическую. Врачи определяют, что большинство пациентов испытывали шум в ушах более трех месяцев, и шум в ушах связан с его латеральностью и сопутствующим головокружением. Оба типа специалистов имели наименьшую ассоциацию с тревогой или депрессией. Для лучшего ведения пациента с шумом в ушах необходимо разработать интернет-сайт, а также провести повышение квалификации специалистов.

**Выводы.** Наши результаты показали необходимость обучения врачей различных специальностей ведению пациентов с шумом в ушах, что в будущем улучшит обеспечение командной работы.

**Ключевые слова:** *шум в ушах, ЛОР, невролог, здравоохранение, менеджмент*

Түйіндеме

**ҚАЗАҚСТАН ДӘРІГЕРЛЕРІ АРАСЫНДАҒЫ  
ҚҰЛАҚТАҒЫ ШУДЫ ЕМДЕУ КӨРІНІСІ****Ақбота С. Сейтқали<sup>1</sup>,****Ляззат К. Кошербаева<sup>1</sup>, <https://orcid.org/0000-0001-8376-4345>****Айгуль Р. Медеулова<sup>1</sup>****Азиза М. Имаматдинова<sup>1</sup>, <https://orcid.org/0000-0003-2233-4522>****Ануар Д. Ахметжан<sup>1</sup>, <https://orcid.org/0009-0009-7451-9706>**<sup>1</sup> КЕАҚ «С.Ж. Асфендияров атындағы Қазақ Ұлттық медицина университеті», Алматы қ., Қазақстан Республикасы.

**Кіріспе.** Құлақтың шуылына қатысты соңғы зерттеулер адамдардың өмір салтының өзгеруіне байланысты аурудың өсуін көрсетеді. Өсуіне қарамастан, құлақ шуы бар науқастарды басқару бойынша ұсыныстар жоқ. Сондай-ақ, дәрігерлердің тиннитус туралы хабардар болуының және тиннитуспен ауыратын науқастарға көмек көрсету кезінде бірлесіп жұмыс істеудің маңыздылығына назар аударылады.

**Біздің зерттеуіміздің мақсаты** дәрігерлердің құлақ шуы бар науқастарды басқарудағы тәжірибесін зерттеу.

**Әдістер.** Біз Қазақстанның ЛОР-дәрігерлері мен невропатологтары арасында таратылған сауалнама әзірледік. Сауалнама WhatsApp-тағы дәрігерлердің чаттары арқылы жүргізілді. Сауалнама Google түрінде, сондай-ақ қағаз нұсқасында жүргізілді. Зерттеу кезеңі 2022 жылдың екінші жартысы болды.

**Нәтижелер.** ЛОР мамандарының көпшілігі құлақтың шуылын аудиологиялық проблема ретінде және аз дәрежеде психологиялық мәселе ретінде қарастырады. Дәрігерлер пациенттердің көпшілігінде үш айдан астам уақыт бойы тиннитус пайда болғанын және тиннитус оның бүйірлігі мен қатар жүретін бас айналуымен байланысты екенін анықтайды. Мамандардың екі түрі де мазасыздықпен немесе депрессиямен ең аз байланысты болды. Тиннитуспен ауыратын науқасты жақсы басқару үшін интернет-сайтты әзірлеу, сондай-ақ мамандардың біліктілігін арттыру қажет.

**Қорытындылар.** Біздің нәтижелер әртүрлі мамандықтағы дәрігерлерді тиннитуспен ауыратын науқастарды басқаруға үйрету қажеттілігін көрсетті, бұл болашақта топтық жұмысты қамтамасыз етуді жақсартады.

**Түйінді сөздер:** тиннитус, ЛОР, невропатолог, денсаулық сақтау, менеджмент.

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**Introduction:**

The term tinnitus "tinnitus" (from the Latin word tinnire) means "to ring". People who experience tinnitus report unspecified acoustic sounds such as ringing, as well as buzzing, clicking, throbbing, and other noises, 1 in the absence of external stimuli[6]. The global prevalence of tinnitus ranges from 5% to 43% [8], for instance the prevalence of tinnitus in the US and Western Europe has been shown to be 10–15% in adults [1]. Systematic surveys of the prevalence of tinnitus indicate great variability and inaccurate understanding of prevalence estimates. Age and hearing impairment were directly related to the prevalence of tinnitus [2]. In recent years, the number of studies on tinnitus has increased, which shows the importance of studying this symptom in the population [12].

The complexity of managing patients with tinnitus lies in the lack of objective data. treatment and its assessment of improvement depends on subjective perceptual experience

[3]. A study conducted by the Cima and authors shows the lack of clinical guidelines in a number of European countries [3]. The knowledge of physicians about the approaches and methods of treatment of tinnitus is relevant, since an increase in the incidence is observed every year.

**The aim** is to study the experience of physicians in the management of patients with tinnitus in Kazakhstan.

**Methods:** At the first stage, we developed a questionnaire based on international literature sources. In particular, we used the work of Rilana Cima co-authors [3] and Tamir co-authors [11]. The questionnaire was sent to three external experts in the field of otolaryngology (ENT) and neurology to assess the comprehensibility of the questions and assess the possibility of its use. This observational cross – sectional study was conducted among ENT and neurology specialists in Kazakhstan. The questionnaire was sent through whatsapp chats and through the involvement of a main coordinator -

otolaryngologist of the Ministry of health. The survey was conducted in a Google form, as well as in a paper version. Respondents participated voluntarily, anonymously. Before participating, the respondents gave their consent and were aware of the purpose and objectives of the topic under study. The survey period was the second half of 2022. The sample size was calculated based on the general number of the ENT and neurologists in Kazakhstan, with an accuracy of 5%, and a 10% increase in possible losses. The analysis

included the results of 103 ENT and 149 neurologists. Statistical processing was carried out using the SPSS program.

**Results:**

The survey involved the largest number of young specialists in both specialties with less than 10 years of work experience. The survey covered respondents from nine regions of Kazakhstan, working mainly in state organizations (Table 1).

Table 1.

**Characteristics of survey participants.**

Questions		ENT		Neurologist		Total	
		N	%	N	%	N	%
Work experience	up to 5 years	38	(36,9%)	29	(19,5%)	67	(26,6%)
	6-10 years old	28	(27,2%)	68	(45,6%)	96	(38,1%)
	11-15 years old	16	(15,5%)	24	(16,1%)	40	(15,9%)
	16-20 years old	6	(5,8%)	0	0	6	(2,4%)
	21 and more	15	(14,6%)	28	(18,8%)	43	(17,1%)
Gender	men	32	(31,1%)	73	(49,0%)	105	(41,7%)
	women	71	(68,9%)	76	(51,0%)	147	(58,3%)
Your region of residence	Aktobe region			30	(20,1%)	30	(11,9%)
	Almaty region	11	(10,7%)	12	(8,1%)	23	(9,1%)
	East Kazakhstan region	6	(5,8%)			6	(2,4%)
	Almaty city	64	(62,1%)	81	(54,4%)	145	(57,5%)
	Astana city	11	(10,7%)	8	(5,4%)	19	(7,5%)
	Shymkent city	5	(4,9%)	4	(2,7%)	9	(3,6%)
	Zhambyl region			7	(4,7%)	7	(2,8%)
	West Kazakhstan region	6	(5,8%)			6	(2,4%)
	Mangystau region			7	(4,7%)	7	(2,8%)
Where do you work?	State Hospital	71	(68,9%)	77	(51,7%)	148	(58,7%)
	Private hospital	32	(31,1%)	72	(48,3%)	104	(41,3%)

One third of respondents in the ENT specialty and 12.8% of neurologists do not consider tinnitus a symptom ( $p < 0.001$ ). Less than half of the respondents in both

specialties do not consider tinnitus to be an audiological problem, however, the percentage is higher among neurologists ( $p < 0.001$ ) Figure 1.

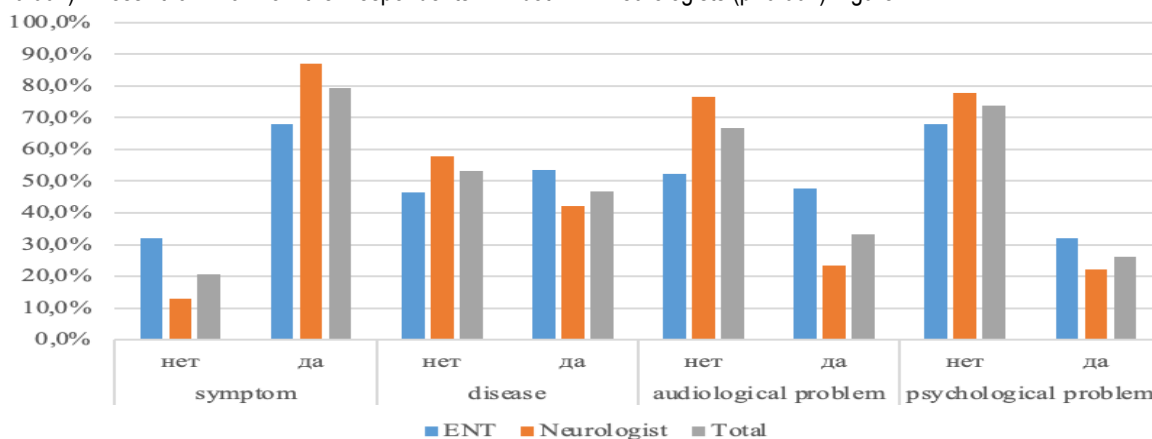


Figure 1. Presentation of tinnitus by ENT specialists and neurologists.

More than half of the respondents in both specialties noted that patients with tinnitus are mostly distressed ( $P = 0.067$ ) and most often experienced tinnitus for more than three months. In patients, the characteristic of tinnitus is associated with its laterality ( $p=0.014$ ), and concomitant dizziness ( $p=0.009$ ), which most often occurred in patients who applied to a neurologist. Both types of specialists had the least associated anxiety or depression. Nevertheless, ENT more often note the presence of primary hearing loss 53.4%, while less among neurologists 33.6% ( $p=0.002$ ). In 25 percent of ENT doctors, the complaints of patients with

tinnitus are aggravated during treatment, in neurologists it was above 50 percent table 2.

The largest number of respondents of both specialties consider it necessary to promote an Internet site for patients with tinnitus ( $p=0.002$ ). Advanced training in the management of patients with tinnitus is necessary for ENT ( $p=0.06$ ), audiologist and neurologists ( $p=0.008$ ). ENT physicians noted less need for training of general practitioners ( $p < 0.001$ ), psychologists ( $p=0.002$ ) and dentists ( $p < 0.001$ ) compared to neurologists, who identified a higher need (Table 3).

Table 2.

**The experience of physicians in management of patient with tinnitus.**

		ENT		Neurologist		Total		
		N	%	N	%	N	%	
Can you describe the average emotional state of a patient with tinnitus at the first consultation?	Very positive			6	(4,0%)	6	(2,4%)	0,067
	Somewhat positive	5	(4,9%)	4	(2,7%)	9	(3,6%)	
	Neutral	31	(30,1%)	57	(38,3%)	88	(34,9%)	
	Distressed	67	(65,0%)	82	(55,0%)	149	(59,1%)	
What is the most common condition of a patient with tinnitus in your practice?	Acute tinnitus (less than 3 months)	5	(4,9%)	14	(9,4%)	19	(7,5%)	0,171
	Chronic tinnitus (more than 3 months)	38	(36,9%)	64	(43,0%)	102	(40,5%)	
	Mixed, both options	60	(58,3%)	71	(47,7%)	131	(52,0%)	
Patients with tinnitus with what condition (medical history) come to you most often?								
Laterality of tinnitus	no	49	(47,6%)	48	(32,2%)	97	(38,5%)	0,014
	yes	54	(52,4%)	101	(67,8%)	155	(61,5%)	
Concomitant dizziness	no	55	(53,4%)	55	(36,9%)	110	(43,7%)	0,009
	yes	48	(46,6%)	94	(63,1%)	142	(56,3%)	
Concomitant medical treatment	no	92	(89,3%)	102	(68,5%)	194	(77,0%)	p<0,001
	yes	11	(10,7%)	47	(31,5%)	58	(23,0%)	
Concomitant depression or anxiety	no	82	(79,6%)	91	(61,1%)	173	(68,7%)	0,002
	yes	21	(20,4%)	58	(38,9%)	79	(31,3%)	
Primary hearing loss	no	48	(46,6%)	99	(66,4%)	147	(58,3%)	0,002
	yes	55	(53,4%)	50	(33,6%)	105	(41,7%)	
What is the percentage of patients with tinnitus whose complaints worsen during treatment?	25	70	(68,0%)	59	(39,6%)	129	(51,2%)	p<0,001
	50	22	(21,4%)	68	(45,6%)	90	(35,7%)	
	75	6	(5,8%)	18	(12,1%)	24	(9,5%)	
	100	5	(4,9%)	4	(2,7%)	9	(3,6%)	

Table 3.

**Needs for further improvement in tinnitus care.**

Questions		ENT		Neurologist		Total		P=
		N	%	N	%	N	%	
Do you think that there should be an accessible, well-formulated inter 2-site that responds to the requests of patients with tinnitus?	yes	93	(90,3%)	111	(74,5%)	204	(81,0%)	0,002
	no	10	(9,7%)	38	(25,5%)	48	(19,0%)	
The need for training specialists in the management of patients with tinnitus								
ENT	yes	98	(95,1%)	132	(88,6%)	230	(91,3%)	0,065
	no	5	(4,9%)	10	(6,7%)	15	(6,0%)	
	don't know			7	(4,7%)	7	(2,8%)	
audiologist	yes	82	(79,6%)	123	(82,6%)	205	(81,3%)	0,765
	no	15	(14,6%)	20	(13,4%)	35	(13,9%)	
	don't know	6	(5,8%)	6	(4,0%)	12	(4,8%)	
neurologist	yes	87	(84,5%)	128	(85,9%)	215	(85,3%)	0,008
	no	10	(9,7%)	21	(14,1%)	31	(12,3%)	
	don't know	6	(5,8%)			6	(2,4%)	
therapist/GP	yes	75	(72,8%)	141	(94,6%)	216	(85,7%)	p<0,001
	no	12	(11,7%)			12	(4,8%)	
	don't know	16	(15,5%)	8	(5,4%)	24	(9,5%)	
psychologist	yes	71	(68,9%)	130	(87,2%)	201	(79,8%)	0,002
	no	16	(15,5%)	8	(5,4%)	24	(9,5%)	
	don't know	16	(15,5%)	11	(7,4%)	27	(10,7%)	
dentist	yes	43	(41,7%)	98	(65,8%)	141	(56,0%)	p<0,001
	no	27	(26,2%)	33	(22,1%)	60	(23,8%)	
	don't know	33	(32,0%)	18	(12,1%)	51	(20,2%)	

**Discussion:**

Tinnitus is a symptom[7], however, not all professionals participating in the survey were aware of this. Moreover, the

smallest number of respondents associated tinnitus with a psychological problem and were less likely to identify depression and anxiety among patients. However,

international guidelines indicate high evidence for the effectiveness of psychological interventions, linking patients' high susceptibility to severe psychological changes[4,9,10]. In addition, cognitive-behavioral therapy has been identified as a treatment that improves the quality of life of patients with tinnitus. In our study, it was determined that the treatment was not effective in 25% of patients of ENT doctors and 50% of neurologists[5]. This can be the reason of that all physicians who participated in the survey noted the need for training. In particular, training is important for general practitioners as they are the first specialists to whom patients turn, although fewer ENT doctors agree with this opinion.

The management and treatment of patients with tinnitus requires physicians to have the knowledge to select an adequate method and approach to treatment, including comorbidities, as well as involving a multidisciplinary team. Evaluation of the effectiveness of tinnitus treatment should include the psychological state of the patient, inclusive[10].

Unfortunately, we were not able to cover physicians from all regions. Nevertheless, we reached the expected number of participants in the survey of both specialties ENT and neurologists. This is the first study conducted among physicians to examine their experience in managing patients with tinnitus. This study allowed us to identify future directions for improving the care of patients with tinnitus as a need for specialist training, as well as focus on psychological support for patients with tinnitus.

#### Conclusion

Our results showed the need for training of physicians of different specialties in the management of patients with tinnitus, which in the future will improve the provision of teamwork. Fewer physicians noted anxiety and depression in patients with tinnitus despite their distressed state. It should also be noted the internet access to information for patients with tinnitus necessary to improve their care.

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#### References:

1. Bhatt J.M., Lin H.W., Bhattacharyya N. Prevalence, Severity, Exposures, and Treatment Patterns of Tinnitus in

the United States // *JAMA Otolaryngol Head Neck Surg.* 2016. 142:959–65. 10.1001/jamaoto.2016.1700

2. Biswas R., Hall D.A. Prevalence, incidence, and risk factors for tinnitus // *Curr Top Behav Neurosci.* 2021. 51:3–28. doi:10.1007/7854\_2020\_154

3. Cima R., Kikidis D., Mazurek B., Haider H., Cederroth C., Noreña A., Lapira A., Bibas A., Hoare D.J. Tinnitus healthcare: a survey revealing extensive variation in opinion and practices across Europe // *BMJ Open.* 2020 Jan 21.10(1):e029346. doi: 10.1136/bmjopen-2019-029346.

4. Cima R.F., Mazurek B., Haider H., Kikidis D., Lapira A., Noreña A., Hoare D.J. A multidisciplinary European guideline for tinnitus: diagnostics, assessment, and treatment // *HNO.* 2019 Mar. 67(Suppl 1):10–42. English. doi: 10.1007/s00106-019-0633-7.

5. Dalrymple S.N., Lewis S.H., Philman S. Tinnitus: Diagnosis and Management // *Am Fam Physician.* 2021 Jun 1. 103(11):663–671.

6. Langguth B., Kreuzer P.M., Kleinjung T., De Ridder D. Tinnitus: causes and clinical management // *Lancet Neurol.* 2013. 12:920–30. 10.1016/S1474-4422(13)70160-1

7. Levine R.A., Oron Y. Tinnitus // *Handb Clin Neurol.* 2015;129:409–31. doi: 10.1016/B978-0-444-62630-1.00023-8.

8. McCormack A., Edmondson-Jones M., Somerset S., Hall D. A systematic review of the reporting of tinnitus prevalence and severity // *Hear Res.* 2016. 337:70–79. doi:10.1016/j.heares.2016.05.009.

9. Ogawa K., Sato H., Takahashi M., Wada T., Naito Y., Kawase T., Murakami S., Hara A., Kanzaki S. Clinical practice guidelines for diagnosis and treatment of chronic tinnitus in Japan // *Auris Nasus Larynx.* 2020 Feb. 47(1):1–6. doi: 10.1016/j.anl.2019.09.007.

10. Shi Y., Robb M.J., Michaelides E.M. Medical management of tinnitus: role of the physician // *J Am Acad Audiol.* 2014 Jan. 25(1):23–8. doi: 10.3766/jaaa.25.1.3.

11. Tamir S.O., Marom T., Shushan S., Goldfarb A., Cinamon U., Handzel O., Gluck O., Oron Y. Tinnitus Perspectives among Israeli Ear, Nose and Throat Physicians: A Nationwide Survey // *J Int Adv Otol.* 2018 Dec;14(3):437–442. doi: 10.5152/iao.2018.5627.

12. Zhou F., Zhang T., Jin Y., Ma Y., Xian Z., Zeng M., Yu G. Worldwide Tinnitus Research: A Bibliometric Analysis of the Published Literature Between 2001 and 2020 // *Front Neurol.* 2022 Jan 31;13:828299. doi: 10.3389/fneur.2022.828299

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