JHD

SALIDAT KAIRBEKOVA
NATIONAL RESEARCH CENTER
FOR HEALTH DEVELOPMENT

JOURNAL OF HEALTH DEVELOPMENT

An official Journal of the Salidat Kairbekova
National Research Center for Health Development

Volume 4
Number (59), 2024

Astana, 2024

Journal of Health Development

ISSN: 2663-1776 online
ISSN: 2663-1768 print
№4 (59) 2024
Издается с 2011 года

Подписано к печати 22 декабря 2024 года.

Собственником журнала является РГП на ПХВ «Национальный научный центр развития здравоохранения имени Салидат Каирбековой» МЗ РК.
Издание зарегистрировано в Министерстве информации и коммуникаций РК.
Свидетельство о постановке на переучет №16659-Ж от 06.09.2017 год.

Редакцияның мекен-жайы:
Journal of Health Development
010000
Қазақстан, Астана қ.
Иманов көшесі, 11
Тел.: +7 (7172) 700 950
E-mail: editor.journalhd@gmail.com
Веб-сайт: www.jhdkz.org

Адрес редакции:
Journal of Health Development
010000
Казахстан, г. Астана
ул. Иманова, 11
Тел.: +7 (7172) 700 950
E-mail: editor.journalhd@gmail.com
Веб-сайт: www.jhdkz.org

Editorial Office:
Journal of Health Development
010000
Kazakhstan, Astana city
Imanov Str, 11
Tel.: +7 (7172) 700 950
E-mail: editor.journalhd@gmail.com
Website: www.jhdkz.org

Salidat Kairbekova National Research Center for Health Development

Journal of Health Development

Scientific & Practical journal

Astana, 2024

https://doi.org/10.32921/2225-9929-2024-4-59-4-10
ӘОЖ 616.12;616-08
ҒТАХР 76.01;76.29.30

Төл мақала

Медициналық студенттердің инфекциялық эндокардит және оның алдын алу шаралары туралы хабардар болуы: Көлденең зерттеу

Кусаинова Ж.Д. [1], Булегенов Т.А. [2], Абралина Ш.Ш. [3], Жапар Ж.Б. [4], Абильтаев А.М. [5], Тулешова Г.Т. [6,7], Джакова Г.Е. [8], Абильмажинова Г.Д. [9], Таштемирова О.Г. [10], Сулейменева Д.М. [11]

[1] Семей медицина университетінің PhD-докторанты, Семей, Қазақстан. E-mail: z2077@mail.ru

[2] Ауруханалық хирургия, анестезиология және реанимация кафедрасының профессоры, Семей медицина университеті, Семей, Қазақстан. E-mail: tolkyn.bulegenov@smu.edu.kz

[3] Стоматологиялық пәндер және жақ-бет хирургиясы кафедрасының доценті, Семей медицина университеті, Семей, Қазақстан. E-mail: sholpan_abralina@mail.ru

[4] Биология және экология кафедрасының оқытушысы, Торайғыров Университеті, Павлодар, Қазақстан. E-mail: zhapar-zhazira@mail.ru

[5] Хирургия кафедрасының доценті, Семей медицина университетінің филиалы, Павлодар, Қазақстан. E-mail: askar.abiltayev@smu.edu.kz

[6] Ардагерлерге арналған орталық медициналық ауруханасының профессоры, Астана, Қазақстан. E-mail:tgt.amu@gmail.com

[7] Қазақстан Республикасы Әділет министрлігінің сот сараптамасы орталығының сарапшысы, Астана, Қазақстан. E-mail: tgt.amu@gmail.com

[8] Павлодар облыстық кардиологиялық орталығының директоры, Павлодар филиалы, Павлодар, Қазақстан. E-mail: guljanat74@mail.ru

[9] Ішкі аурулар және педиатрия кафедрасының меңгерушісі, Семей медицина университеті, Павлодар филиалы, Павлодар, Қазақстан. E-mail: gyzalka@mail.ru

[10] Хирургия кафедрасының меңгерушісі, Семей медицина университетінің филиалы, Павлодар, Қазақстан. E-mail: olga.tashtemirova@mail.ru

[11] Стоматологиялық пәндер және жақ-бет хирургиясы кафедрасының меңгерушісі, Семей медицина университеті, Семей, Қазақстан. E-mail: dana.suleymeneva@mail.ru

Түйіндеме

Инфекциялық эндокардитті алдын алу жөніндегі басшылыққа алынатын ұстанымдардың қайта қаралуына қарамастан, сырқаттанушылық пен өлім көрсеткіштерінің жаһандық деңдейде өсуі тіркелді. Осыған байланысты зерттеушілер арасында инфекциялық эндокардитті алдын алу жөніндегі ұсынымдардың жаңартылған нұсқасының клиникалық практикаға енгізілуі алаңдаушылық туғызады.

Зерттеудің мақсаты: *медициналық университеттің білім алушылары арасында инфекциялық эндокардитті алдын алу бойынша хабардарлық деңгейін бағалау.*

Әдістері. *Медициналық университеттің 77 студенттері арасында көлденең зерттеу жүргізілді. Қатысушыларды қосу критерийі: стоматология факультетінің студенттері ≥ 4 курс. Сауалнама 2024 жылдың наурызынан маусымына дейін Google Forms онлайн платформасын пайдалану арқылы жүргізілді.*

Нәтижелері. *Респонденттер арасында 49,3% инфекциялық эндокардит туралы хабардар болды және осы санның тек 37,7%-ы инфекциялық эндокардитті алдын алу бойынша ұсынымдармен таныс болды. Алынған болжамды модельге сәйкес, инфекциялық эндокардит туралы хабардар болған жағдайда, инфекциялық эндокардитті алдын алу ұсынымдарын инвазивті стоматологиялық процедуралар алдында қолдану мүмкіндігін арттырады (p=0,03).*

Қорытынды. *Алынған нәтижелерге сәйкес, студенттердің инфекциялық эндокардит туралы және оның алдын алу шаралары туралы хабардарлығының төмен деңгейі анықталды, бұл денсаулық сақтау жүйесі тарапынан назар аударуды талап етеді.*

Түйін сөздер: *инфекциялық эндокардит, инвазивті стоматологиялық процедура, антибиотиктік профилактика, студенттер, стоматологтар.*

Corresponding author: Zhumakyz Kussainova, PhD student in «Public Health», Pavlodar branch of the Semey Medical University, Pavlodar. Kazaakhstan.
Postal code: 140001
Address: Kazaakhstan, Pavlodar, Zhayau Musy 1-249.
Phone: +77056080860
E-mail: z2077@mail.ru

J Health Dev 2024; 4 (59):4-10
Recieved: 17-09-2024
Accepted: 29-10-2024

Кіріспе

Инфекциялық эндокардит (ИЭ) – жүрек қақпақшаларының зақымдануы басым сирек кездесетін жұқпалы ауру [1,2]. Аурудың сирек кездесетіндігіне қарамастан, диагноз қойылған науқастар арасындағы үш айлық өлім деңгейі 40%-ға жетеді, бұл өз кезегінде науқастардың өміріне қауіп төндіреді [3–5]. ИЭ сырқаттанушылық пен өлім көрсеткіштерін азайту мақсатында, ИЭ дамуының алдын алу жөніндегі ұсынымдары қайта қаралды [6–8].

ИЭ алдын алу бойынша басшылыққа алынатын ұстанымдарды қайта қаралуына қарамастан, жаһандық ауыртпалықты зерттеу көптеген елдерде жыл сайынғы сырқаттанушылықтың өсуін көрсетті [9–12]. Алайда, ұсынымды клиникалық практикаға енгізгеннен кейін, сырқаттанушылығы төмендеген елдер де бар. Әр түрлі елдердегі сырқаттанушылық көрсеткіштерінің сәйкес айырмашылықтары денсаулық сақтау жүйесін ұйымдастырудың ерекшелігімен түсіндірілуі мүмкін. Атап айтқанда, басшылыққа алынатын ұстанымдар туралы хабардар болуы мен жалпыұлттық қолдану ИЭ ауруының көрсеткіштеріне тікелей әсер етеді.

Зерттеуіміздің мақсаты: медициналық университеттің білім алушылары арасында ИЭ алдын алу туралы хабардар болу деңгейін бағалау болып табылады.

Материалдар мен әдістері

Google Forms онлайн платформасы арқылы медициналық университет студенттеріне көлденең зерттеу жүргізілді. Сауалнама 2024 жылдың наурыз-маусым айлары аралығында жүрді. Зерттеу тақырыбы «Семей медицина университеті» КЕАҚ Этикалық Комитетінің 07.12.2022 жылғы отырысында мақұлданды, №3 хаттама.

Бұл сауалнама «фокус топпен» бірге әзірленді, оның құрамына стоматолог дәрігерлер мен кардиохирургтар кірді. Сауалнама жасау кезінде, біз Қазақстан Республикасының Денсаулық сақтау министрлігінің 2020 жылғы «20» шілдедегі №11 хаттаманың ИЭ алдын алу шаралары туралы бұйрығын негізге алдық [13]. Сонымен қатар, Еуропалық және Американдық кардиологтар қауымдастығының ИЭ алдын алу бойынша халықаралық ұсынымдары ескерілді [6,7].

Зерттеуге 77 білім алушы қатысты, олардың ішінде 40 (51,9%) ер жынысты респонденттер болды, жас медианасы 22 жасты құрады (IQR 20-27). Респонденттердің көпшілігі 74%-ы 4 курс студенттері болды (1-ші кесте).

Зерттеуге қатысушылар сауалнама жүргізер алдында зерттеу мақсаттары туралы хабардар болды. Сауалнама жасырын және ерікті түрде жүргізілді. Сауалнама 12 сұрақтан тұрды, оның ішінде 4 сұрақ респонденттер туралы жеке ақпаратты қамтитын кіріспе бөлігін құрды. Негізгі бөлім антибиотиктік профилактика (АП) бойынша хабардар болу туралы 8 сұрақты қамтыды. Сұрақтар Лайкерт шкаласына сәйкес құрастырылды. Қанағаттанушылықты бағалау үшін, 10 балдық шкала пайдаланылды, мұнда 1–5 балл – «қанағаттанарлықсыз», 6–8 балл – «қанағаттанарлық», 9–10 балл – «өте жақсы». Қатысушыларды қосу критерийі: стоматология факультетінің студенттері. Алып тастау критерийі: 3 курсқа дейінгі студенттерді қоса алғанда.

Сандық деректер Колмогоров-Смирновтың критерийі бойынша сәйкестілікке тексерілді, нәтижесінде интерквартильді диапазоны (IQR) бар медиана түрінде ұсынылды. Сапалық деректер абсолютті сандар мен пайыздар түрінде сипатталған. Бинарлы логистикалық регрессияның көмегімен болжамды модель құрылды. Логистикалық функцияның шекті мәні (p) ROC қисығын талдау әдісін қолдану арқылы анықталды. Статистикалық талдау SPSS (26,0 нұсқасы) бағдарламалық жасақтамасы негізінде жүргізілді.

Кесте 1 – Респонденттердің сипаттамалары

	Параметрлер	Абсолютті сан	Процент (%)
1	Жас		
	<24	52	67,5
	25-30	12	15,6
	31-35	7	9,1
	>35	6	7,8
2	Жыныс		
	Ер	40	51,9
3	Білім алушылар (курс)		
	4 курс	57	74
	5 курс	2	2,6
	6 курс	6	7,8
	Резиденттер	12	15,6

Нәтижелер

Жүргізілген сауалнама нәтижесінде ИЭ туралы және ИЭ алдын алу шаралары бойынша басшылыққа алынатын ұстанымдар туралы хабардар болмаған респонденттер тиісінше 50,7% және 62,3% құрағаны анықталды (2-ші кесте). Білім алушылардың басшылыққа алынатын ұстанымдарымен хабардар болуы 37,7% құрады, олардың ішінде респонденттердің 14,3% – ESC, 10,4% – AHA, 7,8% – ADA, 5,2% – NICE ұсынымдарымен таныс болды (2-ші кесте).

Кесте 2 – ИЭ алдын алу туралы сауалнама нәтижелері

	Сұрақтар	Абсолютті сан	%
1	Сіз инфекциялық эндокардит бойынша қаншалықты хабардарсыз?		
	Өте нашар білемін	10	13
	Нашар білемін	29	37,7
	Жеткілікті білемін	24	31,2
	Жақсы білемін	13	16,9
	Толық білемін	1	1,3
2	Инвазивті стоматологиялық процедуралардан кейін бактериемия қаупі және олардың ықтимал асқынулары туралы қаншалықты хабардарсыз?		
	Өте нашар білемін	5	6,5
	Нашар білемін	8	10,4
	Жеткілікті білемін	37	48,1
	Жақсы білемін	22	28,6
	Толық білемін	5	6,5
3	Инвазивті стоматологиялық процедуралар кезінде антибиотиктік профилактика бойынша ұсынымдар туралы Сіз қаншалықты хабардарсыз?		
	Өте нашар білемін	11	14,3
	Нашар білемін	12	15,6
	Жеткілікті білемін	27	35,1
	Жақсы білемін	22	28,6
	Толық білемін	5	6,5
4	Қандай ИЭ алдын алу бойынша ұсынымдармен таныс боласыз?		
	ESC	11	14,3
	AHA	8	10,4
	ADA	6	7,8
	NICE	4	5,2
	Таныс емеспін	48	62,3
5	Сіз қосалқы аурулары бар стоматологиялық науқастарға пәнаралық көзқарас туралы хабардарсыз ба?		
	Өте нашар білемін	9	11,7
	Нашар білемін	18	23,4
	Жеткілікті білемін	36	46,8
	Жақсы білемін	8	10,4
	Толық білемін	6	7,8
6	Жүрек-қан тамырлары аурулары бар науқастарға стоматологиялық көзқарас туралы стоматологиялық пәндер негізінде ақпараттандыру бойынша студенттердің қанағаттану деңгейі		
	«Қанағаттанарлықсыз»	42	54,6
	«Қанағаттанарлық»	26	33,8
	«Өте жақсы»	9	11,7
7	Стоматологиялық науқастар үшін белгілі бір клиникалық жағдайларда антибиотиктік профилактика қажет екенін анықтау Сізге қиын ба?		
	«Қиын»	40	52
	«Орташа қиын»	25	32,5
	«Қиын емес»	12	15,6

Білім алушылар арасында инвазивті стоматологиялық процедуралардан кейін бактериемия қаупі туралы білу деңгейі өте жоғары болды (83,2%) (2-ші кесте). Респонденттердің басым көпшілігі (70,2%) инвазивті стоматологиялық процедуралар кезінде АП жалпы ұсынымдарымен таныс болды (2-ші кесте). 1-ші суретте респонденттердің пікірінше АП қажет ететін стоматологиялық процедуралар көрсетілген.

Сурет 1 – АП тағайындауды талап ететін стоматологиялық процедуралар

Алынған нәтижелерге сүйенсек, білім алушылардың 52% профилактика ретінде антибиотиктерді тағайындау олар үшін қиынға соғатынын атап өтті, атап айтқанда науқастардың қай санатына АП тағайындау керектігін анықтау (2-ші кесте).

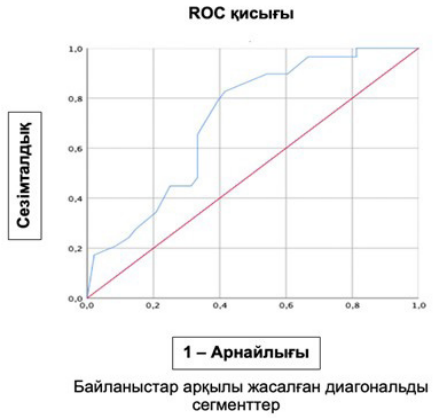
Біздің зерттеуімізде бізді стоматологиялық науқастарға пәнаралық көзқарас бойынша білім алушылардың хабардарлығы, сондай-ақ олардың стоматологиялық пәндер негізінде осы ақпаратты алудағы қанағаттану деңгейі қызықтырды. Нәтижесінде, респонденттердің 65%-ы қосалқы аурулары бар стоматологиялық науқастарға пәнаралық көзқарас туралы жеткілікті хабардар екенін атап өтті (2-ші кесте). Сонымен қатар, білім алушылардың 54,6%-ы жүрек-қан тамырлары аурулары бар науқастарға стоматологиялық көзқарас туралы стоматологиялық пәндер базасында ақпараттандыруға қанағаттанушылықтың төмен деңгейін белгіледі Біз бинарлы логистикалық регрессия әдісімен басшылыққа алынатын ұстанымдарымен білім алушылардың қолдануы туралы болжамдық модель құрдық. Алынған регрессиялық модель статистикалық тұрғыдан маңызды болды (p=0,03). Регрессиялық коэффициенттердің мәндеріне сүйене отырып, жас ұсынымдармен хабардар болу ықтималдығымен кері байланысқа ие болды. Керісінше, ИЭ туралы хабардар болу тікелей байланысқа ие болды. Предикторлардың сипаттамалары 3-ші кестеде келтірілген.

Кесте 3 – Модель предиктарларның білім алушылардың басшылыққа алынатын ұстанымдары қолдану ықтималдығы

Предикторлар	Түзетілген OR; 95% CI	p	Түзетілмеген OR; 95% CI	p
Жас	0,91; 0,82-1,01	0,07	0,92; 0,84-1,00	0,06
ИЭ бойынша хабардар болу	3; 1,1-8;13	0,03*	2,9; 1,11-7,57	0,03*

** – предиктордың әсері статистикалық тұрғыдан маңызды (p<0,05)*

ROC қисығы әдісімен біз модельдің болжау қабілетін бағаладық. Логистикалық функцияның шекті мәні (p) ROC қисығын талдау әдісін қолдану арқылы анықталды (2-сурет). ROC қисығының астындағы аумақ 0,71±0,06 болды (95% Сенімгерлік межелдемесі: 0,60-0,83). Кесу нүктесіндегі логистикалық функцияның мәні 34,34% құрады. 34,34%-дан жоғары немесе оған тең P мәндерінде хабардарлықтың жоғары ықтималдығы анықталды, ал P<34,34% мәндерінде төмен болды. Бұл шекте модельдің сезімталдығы мен арнайылығы сәйкесінше 79% және 60% құрады.



Сурет 2 – Болжамды модельге арналған ROC қисықтары

Талқылау

Зерттеу нәтижесінде біз бірнеше негізгі нәтижелерге қол жеткіздік. Біріншіден, жоғары білім алу деңгейінде ИЭ алдын алу бойынша ұсынымдармен хабардар болуының деңгейінің төмендігі. Екіншіден, респонденттердің жартысынан көбі профилактика ретінде антибиотиктерді тағайындауда, атап айтқанда АП тағайындау керек пациенттер санатын анықтауда қиындық тудыратынын атап өтті. Үшіншіден, алынған болжамдық модельге сәйкес, ИЭ туралы хабардар болған жағдайда, ИЭ алдын алу ұсынымдарын инвазивті стоматологиялық процедуралар алдында қолдану мүмкіндігін арттырады.

Алынған нәтижелерге сәйкес, респонденттердің жартысы ғана (49,3%) ИЭ туралы хабардар болды. Осы санның жартысынан азы (37,7%) ИЭ алдын алу бойынша ұсынымдармен таныс болды. Алынған нәтижелер басқа елдердің көрсеткіштерімен салыстырғанда білім алушылар ИЭ және оның алдын алу туралы ұсынымдарымен хабардарлығының өте төмен деңгейін көрсетті. Мысалы, Нигерия мен Перу студенттерінің осы тақырыптағы хабардарлығы сәйкесінше 90,5% және 53,85% құрады [14,15]. Сонымен қатар, біздің зерттеуімізде жүрек-қан тамырлары аурулары бар стоматологиялық науқастарға көмек көрсету пәнаралық деңгейі бойынша студенттердің хабардарлығының төмен дәрежесі анықталды.

Жапониядағы зерттеу стоматолог дәрігерлердің жүрек-қан тамырлары аурулары бар стоматологиялық науқастарға АП тағайындау туралы хабардар деңгейінің төмендігін көрсетті. Төмен деңгей бакалавр дәрежесін алу кезінде стоматологтардың тиісті түрде оқытылмағандығымен түсіндіріледі [16]. Осылайша, ИЭ даму қаупі жоғары науқастарды дұрыс стоматологиялық көмек көрсету туралы болашақ стоматологтарды ақпараттандыру мен оқытудың маңыздылығын атап өту маңызды. Атап айтқанда, осы санаттағы адамдар үшін инвазивті стоматологиялық процедуралар алдында АП тағайындау керектігі.

Нәтижелерге сүйене отырып, респонденттердің 70,2% инвазивті стоматологиялық процедураларда антибиотиктерді тағайындаудың жалпы

ұстанымдарымен таныс болды. Алайда, клиникалық практикада респонденттердің жартысынан көбі алдын алу шарасы ретінде антибиотиктерді тағайындау кезінде қиыншылыққа тап болады. Атап айтқанда, тағайындауды қажет ететін науқастардың санатын анықтау, сонымен қатар антибиотиктер тобын және жеке дозаны анықтау. Жоғарыда айтылғандардың негізінде, стоматологиялық пәндер базасында Қазақстан Республикасының Денсаулық сақтау министрлігінің клиникалық хаттамаларына сәйкес қажетті ақпарат алуды қамтамасыз ету арқылы, осы проблема бойынша студенттердің эрудициялығын арттыру талап етіледі. Демек, білім алушылардың эрудициясын арттыра отырып, біз халықаралық стандарттарға сәйкес алдын алу шаралары туралы хабардар болып, оларды қолдану арқылы, инвазивті стоматологиялық процедуралардан кейін жұқпалы аурулардың көбеюінің алдын алуына ат салысамыз.

Қорытынды

Осылайша, білім алушылар арасында ИЭ хабардарлығының төмен деңгейі алаңдаушылық туғызады. ИЭ даму қаупі мен инвазивті стоматологиялық процедуралар арасындағы себеп-салдарлық байланыс, сондай-ақ алдын алу шаралары туралы материалдарды қосуды ескере отырып, бұл мәселені стоматологиялық пәндер негізінде жоғары курстар мен резиденттерге арналған білім беру бағдарламасын қайта қарау арқылы шешу қажет.

Мүдделер қақтығысы. Авторлар мүдделер қақтығысы туралы хабарламайды.

Алынған болжамды модельге сәйкес, жалпы ИЭ туралы хабардар болу инвазивті стоматологиялық процедуралар алдында ИЭ алдын алу ұсынымдары туралы қолдануы мүмкіндігін арттырады. Кейбір зерттеулер стоматологтардың ИЭ алдын алу бойынша ұсынымдарды қолданудың төмен деңгейін көрсетті [17–19]. Алынған нәтижелер инвазивті стоматологиялық процедуралардан кейін бактериемия салдарынан ИЭ даму қаупі туралы хабардарлықтың төмен деңгейімен байланыстырады [20]. Тиісінше, инфекция туралы хабардар болмау, ИЭ алдын алу шаралары туралы ұсынымдары турала хабардар болмауына әкеледі. Осылайша, осы тізбек біздің болжамды модельге сәйкес келеді. Болашақ стоматологтар арасында жалпы ИЭ туралы хабардарлықтың артуымен клиникалық практикада осы ұсынымдарды қолдану мүмкіндігі артады.

Қаржыландыру. Зерттеуде сыртқы қаржыландыру көздері қарастырылмаған.

Авторлардың қосқан үлесі. Концептуализация - К.Ж.Д., Б.Т.А.; жазу - К.Ж.Д., А.Ш.Ш.; жазу және редакциялау - К.Ж.Д., Б.Т.А.; мәліметтер жинақтау және оларды саралау - Ж.Ж.Б., А.А.М., Т.Г.Т., Д.Г.Е., А.Г.Д., Т.О.Г., С.Д.М.

Әдебиеттер

1. *Tubiana S., Blotière P.O., Hoen B., Lesclous P. et al. Dental procedures, antibiotic prophylaxis, and endocarditis amon people with prosthetic heart valves: nationwide population based cohort and a case crossover study. Bmj. 2017; 358. [Crossref]*
2. *Thornhill M.H., Gibson T.B., Yoon F., Dayer M.J. et al. Antibiotic prophylaxis against infective endocarditis before invasive dental procedures. Journal of the American College of Cardiology. 2022; 80(11): 1029-1041. [Google Scholar]*
3. *Williams M.L., Doyle M.P., McNamara N., Tardo D. et al. Epidemiology of infective endocarditis before versus after change of international guidelines: a systematic review. Therapeutic Advances in Cardiovascular Disease. 2021; 15. [Crossref]*
4. *Duval X., Delahaye F., Alla F., Tattevin P. et al. Temporal trends in infective endocarditis in the context of prophylaxis guideline modifications: three successive population-based surveys. Journal of the American College of Cardiology. 2012; 59(22): 1968-1976. [Google Scholar]*
5. *Cahill T.J., Harrison J.L., Jewell P., Onakpoya I. et al. Antibiotic prophylaxis for infective endocarditis: a systematic review and meta-analysis. Heart. 2021; 103(12): 937-944. [Crossref]*
6. *Wilson W.R., Gewitz M., Lockhart P.B., Bolger A.F. et al. Prevention of viridans group streptococcal infective endocarditis: a scientific statement from the American Heart Association. Circulation. 2021; 143(20): 963-978. [Crossref]*
7. *Delgado V., Ajmone Marsan N., de Waha S., Bonaros N. ESC Guidelines for the management of endocarditis: Developed by the task force on the management of endocarditis of the European Society of Cardiology (ESC) Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS) and the European Association of Nuclear Medicine (EANM). European heart journal. 2023; 44(39): 3948-4042. [Crossref]*
8. *Richey R., Wray D., Stokes T. Prophylaxis against infective endocarditis: summary of NICE guidance. Bmj. 2008; 336(7647): 770-771. [Crossref]*
9. *Hammond-Haley M., Hartley A., Al-Khayatt B.M., Delago A.J. et al. Trends in the incidence and mortality of infective endocarditis in high-income countries between 1990 and 2019. International journal of cardiology. 2023; 371: 441-451. [Crossref]*
10. *Chen H., Zhan Y., Zhang K., Gao Y. et al. The global, regional, and national burden and trends of infective endocarditis from 1990 to 2019: results from the global burden of disease study 2019. Frontiers in Medicine. 2022; 9: 774224. [Crossref]*
11. *Yang X., Chen H., Zhang D., Shen L. et al. Global magnitude and temporal trend of infective endocarditis, 1990–2019: results from the Global Burden of Disease Study. European Journal of Preventive Cardiology. 2022; 29(8): 1277-1286. [Crossref]*
12. *Alkhouli M., Alqahtani F., Alhajji M., Berzingi C.O. et al. Clinical and economic burden of hospitalizations for infective endocarditis in the United States. In Mayo Clinic Proceedings. 2022; 95(5): 858-866. Elsevier. [Google Scholar]*
13. *Clinical protocols of the Ministry of Health of the Republic of Kazakhstan. Website. [Cited 29 June 2024]. Available from URL:* https://diseases.medelement.com/disease/острый-и-подострый-эндокардит-инфекционный-эндокардит-2019/16483
14. *Abah A.A., Soroye M.O. Knowledge of infective endocarditis among dental students and interns in seven Nigerian Universities. African Journal of Oral Health. 2018; 8(1): 1-9. [Google Scholar]*
15. *Chumpitaz-Cerrate V., Aguirre-Montes P.M., Chávez-Rimache L.K. Nivel de conocimiento sobre profilaxis antibiótica de endocarditis infecciosa en estudiantes de Odontología de Lima. Revista Habanera de Ciencias Médicas. 2020; 19(1): 125-142.*

[Google Scholar]

16. Nakatani S., Ohara T., Ashihara K., Izumi C. et al. Japanese Circulation Society Joint Working Group. JCS 2017 guideline on prevention and treatment of infective endocarditis. Circulation Journal. 2019; 83(8): 1767-1809. [Crossref]

17. Shati A.A. Dentists' knowledge and practices about infective endocarditis antibiotics prophylaxis among children in aseer region, Southwestern Saudi Arabia. Nigerian journal of clinical practice. 2022; 25(2): 123-129. [Google Scholar]

18. Ríordáin R.N., McCreary C. NICE guideline on antibiotic prophylaxis against infective endocarditis: attitudes to the guideline and implications for dental practice in Ireland. British dental journal. 2009; 206(6): E11-E11. [Crossref]

19. Rela R., Sejao A.V., Singh A., Singh P.K. et al. Antibiotic prescribing knowledge, awareness, and attitude of dental surgeons practicing in the urban Indian population. Journal of Pharmacy and Bioallied Sciences. 2021; 13(2): S1637-S1641. [Crossref]

20. Thornhill M.H., Crum A., Campbell R., Stone T. et al. Temporal association between invasive procedures and infective endocarditis. Heart. 2023; 109(3): 223-231. [Google Scholar]

Осведомленность медицинских студентов об инфекционном эндокардите и его мерах профилактики: Поперечное исследование

Кусаинова Ж.Д. [1], Булегенов Т.А. [2], Абралина Ш.Ш. [3], Жапар Ж.Б. [4], Абильтаев А.М. [5], Тулешова Г.Т. [6,7], Джакова Г.Е. [8], Абильмажинова Г.Д. [9], Таштемирова О.Г. [10], Сулейменева Д.М. [11]

[1] PhD-докторант Медицинского университета Семей, Семей, Казахстан. E-mail: z2077@mail.ru

[2] Профессор кафедры больничной хирургии, анестезиологии и реанимации медицинского университета Семей, Семей, Казахстан. E-mail: tolkyn.bulegenov@smu.edu.kz

[3] Доцент кафедры стоматологических дисциплин и челюстно-лицевой хирургии, Медицинский университет Семей, Семей, Казахстан. E-mail: sholpan_abralina@mail.ru

[4] Преподаватель кафедры биологии и экологии, Торайгыровский Университет, Павлодар, Казахстан. E-mail: zhapar-zhazira@mail.ru

[5] Доцент кафедры хирургии, Павлодарский филиал Медицинского университета Семей, Павлодар, Казахстан. E-mail: askar.abiltayev@smu.edu.kz

[6] Профессор Центральной медицинской больницы для ветеранов, Астана, Казахстан. E-mail: tgt.amu@gmail.com

[7] Эксперт центра судебной экспертизы Министерства юстиции Республики Казахстан. E-mail: tgt.amu@gmail.com

[8] Директор Павлодарского областного кардиологического центра, Павлодар, Казахстан. E-mail: guljanat74@mail.ru

[9] Заведующий кафедрой внутренних болезней и педиатрии, Павлодарский филиал Медицинского университета Семей, Павлодар, Казахстан. E-mail: gyzalka@mail.ru

[10] Заведующий кафедрой хирургии, Павлодарский филиал Медицинского университета Семей, Павлодар, Казахстан. E-mail: olga.tashtemirova@mail.ru

[11] Заведующий кафедрой стоматологических дисциплин и челюстно-лицевой хирургии, Медицинский университет Семей, Семей, Казахстан. E-mail: dana.suleymeneva@mail.ru

Резюме

Несмотря на пересмотр руководствующих принципов по профилактике инфекционного эндокардита был зафиксирован глобальный прирост показателей заболеваемости и смертности. В связи с этим среди исследователей вызывает обеспокоенность внедрение обновленных версии рекомендации по профилактике инфекционного эндокардита в клиническую практику.

Цель исследования: оценить уровень осведомленности о профилактике инфекционного эндокардита среди обучающихся медицинского университета.

Методы. Проведено поперечное исследование среди 77 студентов медицинского университета. Критерий включения участников: обучающиеся стоматологического факультета ≥4 курса. Опрос был проведен с марта по июнь 2024 года с использованием онлайн платформы Google Forms.

Результаты. Среди респондентов 49,3% были осведомлены об инфекционном эндокардите, и только 37,7% из данного количества были знакомы с рекомендациями по профилактики инфекционного эндокардита. Согласно полученной прогностической модели, наличие осведомленности об инфекционном эндокардите повышает шансы применения рекомендации по профилактике инфекционного эндокардита перед инвазивными стоматологическими процедурами (p=0,03).

Выводы. Согласно полученным результатам, был выявлен низкий уровень осведомленности студентов об инфекционном эндокардите и о мерах его профилактике, что требует внимания со стороны системы здравоохранения.

Ключевые слова: инфекционный эндокардит, инвазивная стоматологическая процедура, антибиотикопрофилактика, студенты, стоматологи.

Awareness of medical students about Infective Endocarditis and preventive measures: A Cross-Sectional Study

Zhumakyz Kussainova [1], Tolkyn Bulegenov [2], Sholpan Abralina [3], Zhazira Zhapar [4], Askar Abiltayev [5], Gulnara Tuleshova [6,7], Gulzhanat Jakova [8], Guzyal Abilmazhinova [9], Olga Tashtemirova [10], Dana Suleymeneva [11]

[1] PhD-doctoral student of Semey Medical University, Semey, Kazakhstan. E-mail: z2077@mail.ru

[2] Professor of the Department of Hospital Surgery, Anesthesiology and Reanimation at Semey Medical University, Semey, Kazakhstan. E-mail: tolkyn.bulegenov@smu.edu.kz

[3] Associate Professor of the Department of Stomatological Disciplines and Maxillofacial Surgery, Semey Medical University, Semey, Kazakhstan.
E-mail: sholpan_abralina@mail.ru
[4] Teacher, Department of Biology and Ecology, Toraygyrovsky University, Pavlodar, Kazakhstan.
E-mail: zhapar-zhazira@mail.ru
[5] Associate Professor of the Department of Surgery, Pavlodar branch of Semey Medical University, Pavlodar, Kazakhstan.
E-mail: askar.abiltayev@smu.edu.kz
[6] Professor of the Central Medical Hospital for Veterans, Astana, Kazakhstan. E-mail: tgt.amu@gmail.com
[7] Expert of the Center of forensic examination of the Ministry of Justice of the Republic of Kazakhstan. E-mail: tgt.amu@gmail.com
[8] Director of the Pavlodar Regional Cardiology Center, Pavlodar, Kazakhstan. E-mail: guljanat74@mail.ru
[9] Head of the Department of Internal Medicine and Pediatrics, Pavlodar branch of the Medical University of Semey, Pavlodar, Kazakhstan.
E-mail: gyzalka@mail.ru
[10] Head of the Department of Surgery, Pavlodar Branch of the Medical University of Semey, Pavlodar, Kazakhstan.
E-mail: olga.tashtemirova@mail.ru
[11] Head of the Department of Stomatological Disciplines and Maxillofacial Surgery, Semey Medical University, Semey, Kazakhstan.
E-mail: dana.suleymeneva@mail.ru

Abstract

Despite the revision of guidelines for the prevention of infective endocarditis, an increase in global morbidity and mortality has been observed. This has raised concerns among researchers regarding the implementation of updated recommendations for the prevention of infective endocarditis in clinical practice.

The study aims to assess the awareness level of medical university students regarding the prevention of infective endocarditis.

Methods. A cross-sectional study was conducted among 77 dental students in their fourth year or higher at a medical university. The survey was carried out from March to June 2024 using the Google Forms online platform.

Results. Out of the respondents, 49.3% were aware of i infective endocarditis, but only 37.7% of these were familiar with the recommendations for its prevention. The prognostic model suggests that awareness of infective endocarditis increases the likelihood of adhering to prevention recommendations before invasive dental procedures (p=0.03).

Conclusions. The findings indicate a low level of awareness among students about infective endocarditis and its prevention, highlighting a need for increased attention from healthcare system.

Keywords: Infective endocarditis, invasive dental procedures, antibiotic prophylaxis, medical students, dentists.

https://doi.org/10.32921/2225-9929-2024-4-59-11-17
UDC 578.834.1;616.01
IRSTI 76.03.41;76.29.30

Original article

Factors influencing the length of hospitalization for COVID-19 patients: The role of comorbid conditions

Bakhyt Kosherova [1], Yerzhan Zhunussov [2], Yevgeniya Li [3], Gheorghe Placinta [4], Bibigul Tulegenova [5], Xeniya Mkhitaryan [6], Marzhan Saizhanova [7], Mukhsin Rakhmonov [8]

[1] *Professor of the Astana Medical University, Astana, Kazakhstan. E-mail:bakosherova@mail.ru*
[2] *Associate Professor of the Karaganda Medical University, Karaganda, Kazakhstan. E-mail: dr.yerzhan.s.zhunussov@gmail.com*
[3] *PhD student at the Karaganda Medical University, Karaganda, Kazakhstan. E-mail: lie2512418@gmail.com*
[4] *Professor of the Nicolae Testemitanu State Medical and Pharmaceutical University, Chisinau, Moldova. E-mail: gheorghe.placinta@usmf.md*
[5] *Head of the State Institution, Department of Health of the Karaganda region, Karaganda, Kazakhstan. E-mail: dr.bibigul.r.tulegenova@gmail.com*
[6] *Head of the Department of Physiology, Karaganda Medical University, Karaganda, Kazakhstan. E-mail: Mhitaryan@qmu.kz*
[7] *Assistant of the Department, Kazakh National Medical University S.D. Asfendiyarova, Almaty, Kazakhstan. E-mail: Marzhan.saizhanova@mail.ru*
[8] *Resident Physician at the Karaganda Medical University, Karaganda, Kazakhstan. E-mail: mukhsin.m.rakhmonov@mail.ru*

Abstract

The COVID-19 pandemic caused by the SARS-CoV-2 virus has led to significant changes in healthcare, requiring rapid adaptation of clinical approaches for effective disease management. Despite mass vaccination and the development of treatment methods, COVID-19 continues to pose a serious threat, especially for patients with comorbid conditions. According to the World Health Organization, it is the presence of concomitant diseases such as hypertension, coronary heart disease, diabetes mellitus, obesity, cerebrovascular diseases that significantly increases the risk of severe infection and death.

Patients with comorbid conditions make up the majority of those hospitalized with COVID-19, and these conditions worsen the course of the disease, increasing the likelihood of complications, the need for intensive care and increasing the duration of hospitalization. However, the exact mechanisms by which these diseases affect outcomes in COVID-19 remain poorly understood. The role of each specific disease in prolonging the duration of hospitalization and increasing the risk of death is also not fully understood. The study of these factors is necessary to develop more accurate treatment protocols, which is especially important in conditions of shortage of medical resources and high burden on the healthcare system.

Objective: *To evaluate the effect of concomitant diseases on the duration of hospitalization and outcomes in patients with severe COVID-19.*

Methods. *A retrospective analysis of the data of 236 patients hospitalized with a confirmed PCR result for SARS-CoV-2 at the Regional Clinical Hospital of the Karaganda region from January 2021 to January 2022 was carried out. The study included patients over the age of 18 and with comorbid conditions. The statistical analysis was performed using the analysis of variance (ANOVA), the Mann-Whitney criterion and multivariate logistic regression. ROC analysis was performed to assess the sensitivity and specificity of the model.*

Results. *According to the results of the study, age and the presence of comorbid conditions such as hypertension, coronary heart disease, diabetes mellitus and obesity significantly increase the risk of severe complications and deaths in patients with COVID-19. Cerebrovascular diseases were identified as an independent factor of unfavorable prognosis with high predictive significance in the logistic model (AUC = 0.92). The duration of hospitalization was higher in patients with a favorable outcome compared with patients with a fatal outcome, which may indicate that patients with a longer hospital stay have more opportunities to receive complex therapy and dynamic follow-up.*

Conclusions. *The study confirms that age and the presence of comorbid conditions significantly increase the risk of severe complications and death in patients with COVID-19. Cerebrovascular diseases are an independent factor of an unfavorable prognosis. An increase in the duration of hospitalization in patients with a favorable outcome may indicate the possibility of complex therapy and dynamic follow-up, which improves clinical results and emphasizes the need for a personalized approach to the treatment of high-risk patients.*

Keywords: *COVID-19, SARS-CoV-2, prediction of outcome, risk factors, comorbid conditions.*

Corresponding author: Li Yevgeniya, PhD student PhD student at the Karaganda Medical University, Karaganda, Kazakhstan.
Postal code: 100009
Address: Kazakhstan, Karaganda, Gogol St. 40
Phone: +77472512418
E-mail: lie2512418@gmail.com

J Health Dev 2024; 4 (59):11-17
Recieved: 28-08-2024
Accepted: 04-10-2024

Introduction

The 2019 pandemic of a new coronavirus infection (COronaVIrus Disease 2019 (COVID-19) caused by SARS-CoV-2, has stimulated active research of its properties as well as development of methods for diagnosis, therapy, and prevention. In May 2023, the World Health Organization (WHO) published its decision on cancellation of the international emergency regime and declaring the end of COVID-19 pandemic [1]. According to WHO there have been more than 775 million cases and more than 7 million deaths worldwide [2]. At this moment, COVID-19 is beginning to show signs of seasonal disease [3]. COVID-19 can affect people of any age, however, people over the age of 60, as well as patients with concomitant diseases (comorbidities) and risk factors such as obesity, cardiovascular diseases, chronic kidney diseases, diabetes mellitus, lung diseases, oncological diseases, have a significantly higher risk of developing severe forms of COVID-19 [4–8]. Contrary to the prevailing opinion, the main pathogenetic mechanism of transition to severe course that is often associated with fatal outcome in COVID-19 is not only severe pneumonia, but also thrombosis, systemic inflammation and cardiovascular system damage which cause damage to vital organs [9].

At the moment, it is known that patients with comorbid conditions, especially the elderly, make up a significant part of those hospitalized with severe COVID-19. The presence of comorbidity in patients significantly worsens the course of the disease, leading to severe complications, increases the duration of hospitalization and increases the risk of death [10-12].

However, the mechanisms by which various comorbid conditions affect the course and outcomes of COVID-19 have not been sufficiently studied. Studies show that each comorbidity can have a unique effect on clinical outcomes, but it is not clear which conditions are the greatest risk factors for deaths and long-term hospital stay [13]. This makes it difficult to develop personalized treatment protocols and increases the likelihood of overuse of medical resources in the management of such patients.

In addition, the current situation with the overload of the healthcare system in many countries highlights the importance of developing methods for early detection and risk assessment for patients with COVID-19 and comorbid conditions. In conditions of resource scarcity, accurate data on the significance of each comorbid condition is needed to predict outcomes, which will allow clinicians to develop personalized treatment strategies aimed at improving outcomes and reducing the duration of hospitalization.

The purpose of this study is to determine the effect of various comorbid conditions on the duration of hospitalization and severity of outcomes in patients with severe COVID-19.

Materials and methods

A retrospective analysis of the medical histories of patients with confirmed PCR analysis for COVID-19 hospitalized in the Infectious Diseases Center of the Regional Clinical Hospital of the Karaganda region from January 2021 to January 2022 was carried out. At the initial stage, the sample consisted of 675 medical histories, after which, according to the exclusion criteria, 236 patients who met the inclusion criteria were included in the study (Figure 1).

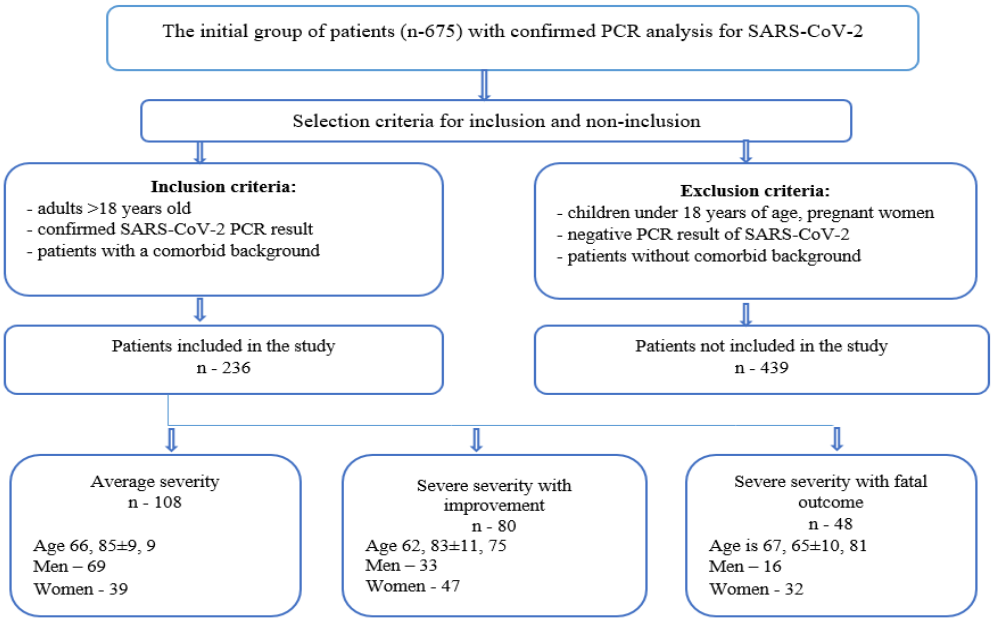


Figure 1 - The sample structure of patients

Inclusion criteria:

-age 18 years and older, laboratory-confirmed COVID-19 with moderate to severe severity;

-the presence of at least one of the following comorbid conditions: arterial hypertension, coronary heart disease, diabetes mellitus, obesity, liver disease, kidney disease, oncology, COPD or cerebrovascular diseases.

Exclusion criteria:

-absence of comorbid diseases;

- insufficient completeness of clinical data and hospitalization for reasons unrelated to COVID-19;

-pregnant women and patients under the age of 18.

Of the total number of patients included, 132 were men and 104 were women, with an average age of 63.7 ± 10.4 years. The patients were divided into three groups depending on the severity of COVID-19: a group with a moderate course of the disease (n=108), a group with a severe course and a favorable outcome (n=80), as well as a group with a severe course and a fatal outcome (n=48).

Demographic and clinical data were collected for each patient, including age, gender, severity of COVID-19, presence of comorbid conditions, date of hospitalization, and length of hospital stay. The study was approved by the local Bioethics Commission at the Karaganda Medical University NCJSC (Protocol No. 16 dated 12/10/2023). All patient data was depersonalized and used exclusively for scientific purposes in accordance with international standards of ethics and personal data protection.

Statistical processing of obtained results was performed with the use of R software package, version 4.3.1. Mean (mean, m) and standard deviation (SD) of indicators were recorded. Analysis of variance (ANOVA) was used to assess the differences between groups in terms of quantitative parameters with normal distribution (according to Shapiro-Wilk criterion). If the distribution was deviated from normal values, the Mann-Whitney criterion was used. Differences in qualitative indicators across the groups were assessed with the use of Fisher's exact criterion. The level of statistical significance utilized was 5% ($p<0.05$).

Multifactor logistic regression (MLR) model was used to identify factors affecting mortality in patients with severe cases of COVID-19. The following independent variables were used: sex, age, day of hospitalization from the onset of the disease, and presence of comorbidities. The sensitivity and specificity of the constructed MLRs were evaluated by ROC-curve according to the value of area under the curve (AUC) “sensitivity-specificity” (0.5 - uninformative test; 1 - perfectly accurate test).

Results

236 patients with moderate to severe course of COVID-19 were included in the study in total. Moderate COVID-19 severity was diagnosed in 108 patients (group 1; 39 women, 69 men); severe course with further improvement was diagnosed in 80 patients (group 2; 33 men, 47 women); and severe course with fatal outcome was diagnosed in 48 patients (group 3; 16 men, 32 women). The duration of illness at the time of hospitalization of patients from groups 1, 2, and 3 was 7.22±3.51, 7.31±3.45, and 7.96±2.79 days on average, respectively. The age of patients from groups 1, 2 and 3 was statistically and significantly different (p=0.019) and was 66.85±9.9, 62.83±11.75 and 67.65±10.81 years, respectively.

Table 1 - Comorbid conditions in patients with COVID-19 of different degrees of severity

Comorbid disease	Moderately severe course, n (%)	Severe course		p*
		With recovery, n (%)	Fatal outcome, n (%)	
Arterial hypertension	95 (88%)	64 (80%)	42 (87.5%)	0.295
Ischemic heart disease	43 (39.8%)	31 (38.8%)	31 (64.6%)	0.008
Diabetes mellitus	50 (46.3%)	42 (52.5%)	32 (66.7%)	0.061
Obesity	14 (13%)	19 (23.8%)	17 (35.4%)	0.005
Oncological diseases	1 (0.9%)	2 (2.5%)	3 (6.2%)	0.123
Kidney disease	25 (23.1%)	16 (20%)	9 (18.8%)	0.836
Liver disease	1 (0.9%)	2 (2.5%)	0 (0%)	0.595
Cerebrovascular diseases	30 (27.8%)	15 (18.8%)	14 (29.2%)	0.255
Chronic obstructive pulmonary disease	8 (7.4%)	3 (3.8%)	1 (2.1%)	0.366

*Note: n - number of patients; * - indicator was obtained by Fisher’s exact test*

The most frequent comorbid conditions among hospitalized patients were arterial hypertension (AH) (n=201; 85.2%), diabetes mellitus (n=124; 52.5%), and coronary heart disease (n=105; 44.5%). Less frequently, subjects suffered cerebrovascular disease (CVD) (n=59; 25.0%), kidney disease (n=50; 21.2%), and obesity (n=40; 16.9%). Patients with chronic obstructive pulmonary disease (COPD) (n=12; 8.9%), cancer (n=6; 2.5%), and liver disease (n=3; 1.3%) were the least frequent to diagnose.

Table 2 - Results of multifactor linear regression of features that determine the outcome of COVID-19

Feature	ß	p	OR	95% CI
Gender (male)	-0.4565	0.4422	0.6335	0.1903–2.0106
Age	0.0251	0.4127	1.0255	0.966–1.0931
Day of hospitalization from onset of disease	-0.0061	0.9522	0.9939	0.8112–1.2133
Associated diseases				
Arterial hypertension	-0.4759	0.5708	0.6213	0.1211–3.4827
Ischemic heart disease	1.0741	0.0884	2.9273	0.8681–10.5624
Diabetes mellitus	0.2906	0.6162	1.3373	0.4223–4.2082
Obesity	0.4938	0.4292	1.6385	0.4747–5.6669
Kidney disease	-0.4752	0.5074	0.6217	0.1404–2.4248
Cerebro-vascular diseases	1.482	0.0373	4.4016	1.1239–18.9428

Note: β - linear regression coefficient; p – indicator of statistical significance; OR - odds ratio; CI - confidence interval

The prevalence of most comorbid diseases was as follows: AH, DM, cancer, kidney, liver diseases; CVDs and COPDs did not show any statistically significant difference in patients with moderate or severe course, regardless of the outcome ($p>0.05$ in each case). In patients with severe course of COVID-19 and with fatal outcome, the percentage of IHD and obesity was statistically and significantly higher than in those having severe course with convalescence and moderate course ($p=0.008$ and 0.005, respectively). Details are shown in Table 1 below.

The duration of hospitalization in patients of groups 1, 2 and 3 was 11.74±2.62, 17.6±7.87 and 13.5±5.3 days, respectively ($p<0.001$). When comparing the length of hospitalization among patients with severe course of COVID-19, it was established that patients with favorable outcome had statistically significant longer length of hospitalization than in those having fatal outcomes (17.6±7.87 and 13.5±5.3 days, respectively; $p=0.007$).

According to MLR results, we found that the presence of CVD significantly worsened the prognosis for COVID-19 patients. Patients with CVD had a statistically significant ($p<0.05$) higher risk of mortality when compared to patients without the same diseases (Table 2).

Discussion

The increased attention of the scientific community to the study of coronavirus infection made it possible at the initial stages to determine that patients with comorbid conditions are more at risk of adverse outcomes, including a high probability of hospitalization and hospital mortality [14].

Our study showed that patients with COVID-19 and concomitant diseases significantly increase the duration of inpatient treatment. Chronic non-communicable diseases have already been recognized as one of the key risk factors for severe coronavirus infection, which increases the likelihood of developing multiple organ failure in this group of patients and increases the risk of death, especially in the elderly. In all groups, the average age of patients was more than 60 years, respectively, this cohort of patients has an increased risk of moderate and severe COVID-19, especially fatal (group 3). The data of our study are confirmed by numerous studies on the effect of concomitant diseases on the severity of the course and outcomes of the disease [15-17]. Thus, old age and the presence of comorbid diseases such as hypertension, coronary heart disease, diabetes mellitus and obesity are significant predictors of the severe course of COVID-19 and an increased risk of death. These data highlight the need for early identification and monitoring of patients from these risk groups in order to initiate aggressive therapy in a timely manner.

Comorbid conditions significantly influenced the prognosis of the disease, to a greater extent the presence of heart disease, diabetes mellitus and obesity. These are due to the fact that these nosologies are often accompanied by chronic inflammation and metabolic disorders, which increases the risk of severe complications when infected with SARS-CoV-2.

Patients with CVD have a higher risk of severe complications and mortality when infected with SARS-CoV-2. This is due to the following factors:

1. Systemic inflammation and hypoxia: CVD is associated with chronic inflammation and microcirculation failures. SARS-CoV-2 worsens the said processes and results in systemic inflammation and tissue hypoxia that exacerbates the course of the disease and increases the risk of mortality.

2. Coagulation disorders: patients with CVD often have a predisposition to coagulation disorders that are exacerbated in COVID-19. High D-dimer levels identified in these patients correspond to increased risk of thrombosis and thromboembolic complications which significantly worsen the disease prognosis.

3. Comorbid conditions: patients with CVD often have other comorbidities (AH, CHD, diabetes) that also exacerbate the course of COVID-19 and increase the risk of severe complications and mortality.

Analysis of clinical outcomes showed that patients with CVD and severe manifestation of COVID-19 had an unfavorable prognosis. Out of 29 patients with severe COVID-19 and CVD, 15 (51.7%) had a fatal outcome. The said numbers are significantly higher when compared with patients without CVDs. High mortality rates among patients with CVD emphasizes the need for special attention and individual treatment approaches for this specific group of patients.

Cerebrovascular diseases significantly worsen the prognosis in patients with severe course of COVID-19. High risk of lethal outcome and severe complications requires special care for this group of patients. Comprehensive treatment approach that includes aggressive anticoagulant and anti-inflammatory therapy as well as management of comorbid conditions is the key to improving outcomes and reducing mortality rates in patients with CVD and COVID-19.

The results obtained from the study are consistent with the data of large international studies. For instance, they are consistent with a study conducted in China which showed that age of 65+ and the presence of comorbid conditions significantly increased the risk of mortality [18].

The impact of cerebrovascular disease on COVID-19 outcomes discussed in our study is also supported by data from other studies indicating an increased risk of mortality in patients with CVD. Studies in Italy and Spain [8,19-21] have also shown that patients with CVD have more severe course of COVID-19 and high risk of mortality.

Conclusions

1. Patients with comorbid conditions such as hypertension, coronary heart disease, diabetes mellitus and obesity have a significantly increased risk of severe complications and death in COVID-19.

2. Cerebrovascular diseases are an independent factor in an unfavorable prognosis, significantly increasing the likelihood of death in patients with severe COVID-19.

3. The duration of hospitalization turned out to be higher in patients with a favorable outcome, which suggests that a longer stay in the hospital may contribute to more successful treatment due to the possibility of complex therapy and dynamic follow-up.

4. The prognostic model proposed in this study demonstrated high sensitivity and specificity (AUC = 0.92), which makes it a useful tool for early identification of patients at high risk of adverse outcomes and allows optimizing the allocation of medical resources.

5. Further research is needed to better understand the effects of various comorbid conditions on COVID-19 outcomes in order to improve personalized treatment

approaches and reduce the length of hospitalization for high-risk patients.

Author contributions. The authors took an equal part in writing this article.

Conflict of interest. No conflict of interest has been declared. This material has not been previously submitted for publication in other publications and is not under consideration by other publishers.

Financing. During this work, there was no funding from outside organizations and medical representatives.

Author contributions. Conceptualisation – B.K.,Y.Z.,G.P. and Y.L; methodology – Y.Z.,Y.L, X.M.,; examination– B.T.; formal analysis– M.S., M.R. and B.A.; writing (original draft preparation) – Y.L.; writing (review and edition) – B.K.,Y.Z.

All authors have read, agreed to release version of a manuscript and signed the Author's right transfer form.

Literature

1. World Health Organization. From emergency response to long-term COVID-19 disease management: sustaining gains made during the COVID-19 pandemic (No. WHO/WHE/SPP/2023.1). World Health Organization. 2023. Website. [Cited 12 Sep 2024]. Available from URL: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public?adgroupsurvey={adgroupsurvey}&gad_source=1&gclid=EAIaIQobChMIoNvBvpXEigMVcRmiAx3eQwpuEAAYASAAEgJ3qfD_BwE

2. WHO COVID-19 dashboard [Electronic resource]. Website. [Cited 12 Sep 2024]. Available from URL: https://data.who.int/dashboards/covid19/cases

3. Nottmeyer L., Armstrong B., Lowe R., Abbott S. et al. The association of COVID-19 incidence with temperature, humidity, and UV radiation–A global multi-city analysis. Science of The Total Environment. 2023; 854. [Google Scholar]

4. Bazdyrev E.D. Coronavirus infection-an urgent problem of the XXI century. Complex problems of cardiovascular diseases. 2020; 9(2): 6-16. [Google Scholar]

5. Popovich J.G., Rakhimova R.Z., Akhmetzhanova D.O. COVID 19-new infection of XXI century. 2020. [Google Scholar]

6. Sun Y., Dong Y., Wang L., Xie H. et al. Characteristics and prognostic factors of disease severity in patients with COVID-19: The Beijing experience. Journal of autoimmunity. 2020; 112: 102473. [Google Scholar]

7. Wu Z., McGoogan J.M. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. Jama. 2020; 323(13): 1239-1242. [Crossref]

8. Onder G., Rezza G., Brusaferro S. Case-fatality rate and characteristics of patients dying in relation to COVID-19 in Italy. Jama. 2020; 323(18): 1775-1776. [Crossref]

9. Mueller A.L., McNamara M.S., Sinclair D.A. Why does COVID-19 disproportionately affect older people?. Aging (albany NY). 2020; 12(10): 9959. [Crossref]

10. Sanyaolu A., Okorie C., Marinkovic A., Patidar R. et al. Comorbidity and its impact on patients with COVID-19. SN comprehensive clinical medicine. 2020; 2: 1069-1076. [Google Scholar]

11. Richardson S., Hirsch J.S., Narasimhan M., Crawford J.M. et al. Northwell COVID-19 Research Consortium. Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City area. Jam. 2020; 323(20): 2052-2059. [Crossref]

12. Du R.H., Liang L.R., Yang C.Q., Wang W. et al. Predictors of mortality for patients with COVID-19 pneumonia caused by SARS-CoV-2: a prospective cohort study. European Respiratory Journal. 2020; 55(5). [Google Scholar]

13. O'Mahoney L.L., Routen A., Gillies C., Ekezie W. et al. The prevalence and long-term health effects of Long Covid among hospitalised and non-hospitalised populations: A systematic review and meta-analysis. EClinicalMedicine. 2023; 55. [Google Scholar]

14. Richardson S., Hirsch J.S., Narasimhan M., Crawford J.M. et al. Increased Inpatient Mortality for Cardiovascular Patients during the first COVID-19 Epidemic in New York. J Am Heart Assoc. 2020; 10(16). [Google Scholar]

15. Cai Q., Huang D., Ou P., Yu H. et al. COVID-19 in a designated infectious diseases hospital outside Hubei Province, China. Allergy. 2020; 75(7): 1742-1752. [Google Scholar]

16. Wang D., Hu B., Hu C., Zhu F. et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. Jama. 2020; 323(11): 1061-1069. [Crossref]

17. Wan S., Xiang Y.I., Fang W., Zheng Y. et al. Clinical features and treatment of COVID-19 patients in northeast Chongqing. Journal of medical virology. 2020; 92(7): 797-806. [Google Scholar]

18. Guan W.J., Liang W.H., Zhao Y., Liang H.R. et al. Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis. European Respiratory Journal. 2020; 55(5). [Google Scholar]

19. Hernández-Fernández F., Sandoval Valencia H., Barbella-Aponte R.A., Collado-Jiménez R.et al. Cerebrovascular disease in patients with COVID-19: neuroimaging, histological and clinical description. Brain. 2020; 143(10): 3089-3103. [Crossref]

20. Sangalli D., Martinelli-Boneschi F., Versino M., Colombo I. et al. Impact of SARS-CoV-2 infection on acute intracerebral haemorrhage in northern Italy. Journal of the neurological sciences. 2021; 426: 117479. [Crossref]

21. Santella B., Aliberti S.M., Fortino L., Donato A. et al. Age Differences and Prevalence of Comorbidities for Death and Survival in Patients with COVID-19: A Single-Center Observational Study in a Region of Southern Italy. Life. 2020; 14(11): 1376. [Crossref]

COVID-19 ауруханаға жатқызу ұзақтығына әсер ететін факторлар: Қатар жүретін жағдайлардың рөлі

Кошерова Б.Н. [1], Жунусов Е.С. [2], Ли Е.А. [3], Gheorghe Placinta [4], Тулегенова Б.Р. [5], Мхитарян К.Э. [6], Сайжанова М.А. [7], Рахмонов М.М. [8]

[1] *Профессор, Астана медицина университеті, Астана, Қазақстан. E-mail: bakosherova@mail.ru*

[2] *Қауымдастырылған профессор, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: dr.yerzhan.s.zhunussov@gmail.com*

[3] PhD-докторант, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: lie2512418@gmail.com
[4] Профессор, Николае Тестемицану атындағы Мемлекеттік медицина және фармацевтика университеті, Кишинёв, Молдова. E-mail: gheorghe.placinta@usmf.md
[5] Мемлекеттік мекеме басшысы, Қарағанды облысының Денсаулық сақтау басқармасы, Қарағанды, Қазақстан. E-mail: dr.bibigul.r.tulegenova@gmail.com
[6] Физиология кафедрасының меңгерушісі, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: Mhitaryan@qmu.kz
[7] Кафедра ассистенті, С.Д. Асфендияров атындағы Қазақ Ұлттық медицина университеті, Алматы, Қазақстан. E-mail: Marzhan.saizhanova@mail.ru
[8] Резидент дәрігер, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: mukhsin.m.rakhmonov@mail.ru

Түйіндеме

SARS-CoV-2 вирусынан туындаған COVID-19 пандемиясы денсаулық сақтаудың айтарлықтай өзгеруіне әкелді, бұл ауруды тиімді басқару үшін клиникалық тәсілдердің жылдам бейімделуін талап етті. Жаппай вакцинациялау мен емдеу әдістерінің дамуына қарамастан, COVID-19, әсіресе қосымша аурулары бар науқастар үшін үлкен қауіп төндіруде. Дүниежүзілік денсаулық сақтау ұйымының мәліметі бойынша, бұл артериялық гипертензия, жүректің ишемиялық ауруы, қант диабеті, семіздік, цереброваскулярлық аурулар сияқты қатар жүретін аурулардың болуы инфекцияның ауыр ағымы мен өлім қаупін едәуір арттырады.

Қатар жүретін науқастар COVID-19 ауруханасына жатқызылғандардың көп бөлігін құрайды және бұл жағдайлар аурудың ағымын нашарлатады, асқыну ықтималдығын, қарқынды терапия қажеттілігін және ауруханаға жатқызу ұзақтығын арттырады. Алайда, бұл аурулардың COVID-19 нәтижелеріне әсер ететін нақты механизмдері әлі де жақсы зерттелмеген. Сондай-ақ, ауруханаға жатқызу ұзақтығын ұзартудағы және өлім қаупін арттырудағы әрбір нақты аурудың рөлі толық тарқатылмаған. Бұл факторларды зерттеу дәлірек емдеу хаттамаларын әзірлеу үшін өте маңызды, бұл әсіресе медициналық ресурстардың тапшылығы және денсаулық сақтау жүйесіне жоғары жүктеме жағдайында маңызды.

Зерттеудің мақсаты: ауыр COVID-19 бар науқастардың ауруханаға жатқызу ұзақтығына және нәтижелеріне ілеспе аурулардың әсерін бағалау.

Әдістері. 2021 жылдың қаңтарынан 2022 жылдың қаңтарына дейін Қарағанды облысының облыстық клиникалық ауруханасына SARS-CoV-2 ПТР расталған нәтижесімен ауруханаға жатқызылған 236 пациенттің деректеріне ретроспективті талдау жүргізілді. Зерттеуге 18 жастан асқан және қатар жүретін аурулары бар науқастар кіреді. Статистикалық талдау дисперсиялық талдауды (ANOVA), Манн-Уитни критерийін және көп факторлы логистикалық регрессияны қолдану арқылы жүзеге асырылады. Модельдің сезімталдығы мен ерекшелігін бағалау үшін ROC талдауы жүргізілді.

Нәтижесі. Зерттеу нәтижелері бойынша артериялық гипертензия, жүректің ишемиялық ауруы, қант диабеті және семіздік сияқты коморбидті жағдайлардың жасы мен болуы COVID-19 пациенттерінде ауыр асқынулар мен өлім қаупін айтарлықтай арттыратыны анықталды. Цереброваскулярлық аурулар логистикалық модельде (AUC = 0,92) жоғары болжамды маңыздылығы бар қолайсыз болжамның тәуелсіз факторы ретінде анықталды. Ауруханаға жатқызу ұзақтығы өлімге әкелетін емделушілермен салыстырғанда қолайлы нәтиже көрсеткен емделушілерде жоғарырақ болды, бұл ауруханада ұзағырақ емделушілерде кешенді терапия мен динамикалық бақылауға көбірек мүмкіндіктер бар екенін көрсетуі мүмкін.

Қорытынды. Жүргізілген зерттеу жас пен қатар жүретін жағдайлардың болуы COVID-19 пациенттерінде ауыр асқынулар мен өлім қаупін айтарлықтай арттыратынын растайды. Цереброваскулярлық аурулар қолайсыз болжамның тәуелсіз факторы болып табылады. Қолайлы нәтижесі бар емделушілерде ауруханаға жатқызу ұзақтығының ұлғаюы клиникалық нәтижелерді жақсартатын және тәуекелі жоғары пациенттерді емдеуге жекелендірілген тәсілдің қажеттілігін көрсететін кешенді терапия мен динамикалық бақылау мүмкіндігін көрсетуі мүмкін.

Түйін сөздер: COVID-19, SARS-CoV-2, нәтижені болжау, қауіп факторлары, қатар жүретін жағдайлар.

Факторы, влияющие на продолжительность госпитализации при COVID-19: Роль коморбидных состояний

Кошерова Б.Н. [1], Жунусов Е.С. [2], Ли Е.А. [3], Gheorghe Placinta [4], Тулегенова Б.Р. [5], Мхитарян К.Э. [6], Сайжанова М.А. [7], Рахмонов М.М. [8]

[1] Профессор, Медицинский университет Астана, Казахстан. E-mail: bakosherova@mail.ru
[2] Ассоциированный профессор, Медицинский университет Караганды, Караганда, Казахстан. E-mail: dr.yerzhan.s.zhunussov@gmail.com
[3] Докторант-PhD, Медицинский университет Караганды, Караганда, Казахстан. E-mail: lie2512418@gmail.com
[4] Профессор Государственного университета медицины и фармацевтики имени Николае Тестемицану, Кишинёв, Молдова. E-mail: gheorghe.placinta@usmf.md
[5] Руководитель Управление здравоохранения Карагандинской области, Караганда, Казахстан. E-mail: dr.bibigul.r.tulegenova@gmail.com
[6] Заведующий кафедры физиологии, Медицинский университет Караганды, Караганда, Казахстан. E-mail: Mhitaryan@qmu.kz
[7] Ассистент кафедры, Казахский национальный медицинский университет имени С.Д. Асфендиярова, Алматы, Казахстан. E-mail: Marzhan.saizhanova@mail.ru
[8] Врач – резидент, Медицинский университет Караганды, Караганда, Казахстан. E-mail: mukhsin.m.rakhmonov@mail.ru

Резюме

Пандемия COVID-19, вызванная вирусом SARS-CoV-2, привела к значительным изменениям в здравоохранении, требуя быстрой адаптации клинических подходов для эффективного управления заболеванием. Несмотря на массовую вакцинацию и

разработку методов лечения, COVID-19 продолжает представлять серьёзную угрозу, особенно для пациентов с коморбидными состояниями. По данным Всемирной организации здравоохранения, именно наличие сопутствующих заболеваний, таких как артериальная гипертензия, ишемическая болезнь сердца, сахарный диабет, ожирение, цереброваскулярные заболевания, значительно увеличивает риск тяжёлого течения инфекции и летального исхода.

Пациенты с коморбидными состояниями составляют большую часть госпитализированных с COVID-19, и данные состояния усугубляют течение болезни, увеличивая вероятность осложнений, потребности в интенсивной терапии и увеличения продолжительности госпитализации. Однако точные механизмы, посредством которых данные заболевания влияют на исходы при COVID-19, остаются недостаточно изученными. Также не до конца понятна роль каждого конкретного заболевания в удлинении продолжительности госпитализации и повышении риска летального исхода. Изучение этих факторов необходимо для разработки более точных протоколов лечения, что особенно важно в условиях дефицита медицинских ресурсов и высокой нагрузки на систему здравоохранения.

Цель исследования: оценить влияние сопутствующих заболеваний на продолжительность госпитализации и исходы у пациентов с тяжёлой формой COVID-19.

Методы. Проведен ретроспективный анализ данных 236 пациентов, госпитализированные с подтвержденным результатом ПЦР на SARS-CoV-2 в Областную клиническую больницу Карагандинской области с января 2021 по январь 2022 года. В исследование включены пациенты старше 18 лет и имеющие коморбидные состояния. Статистический анализ выполнен с использованием дисперсионного анализа (ANOVA), критерия Манна-Уитни и многофакторной логистической регрессии. ROC-анализ проведён для оценки чувствительности и специфичности модели.

Результаты. По результатам исследования установлено, что возраст и наличие коморбидных состояний, таких как артериальная гипертензия, ишемическая болезнь сердца, сахарный диабет и ожирение, значительно увеличивают риск тяжёлых осложнений и летальных исходов у пациентов с COVID-19. Цереброваскулярные заболевания выявлены как независимый фактор неблагоприятного прогноза, обладающий высокой предсказательной значимостью в логистической модели (AUC = 0,92). Продолжительность госпитализации оказалась выше у пациентов с благоприятным исходом по сравнению с пациентами с летальным исходом, что может свидетельствовать о том, что у пациентов с более длительным пребыванием в больнице больше возможностей для получения комплексной терапии и динамического наблюдения.

Выводы. Проведенное исследование подтверждает, что возраст и наличие коморбидных состояний существенно повышают риск тяжелых осложнений и летального исхода у пациентов с COVID-19. Цереброваскулярные заболевания выступают независимым фактором неблагоприятного прогноза. Увеличение продолжительности госпитализации у пациентов с благоприятным исходом может свидетельствовать о возможности проведения комплексной терапии и динамического наблюдения, что улучшает клинические результаты и подчеркивает необходимость персонализированного подхода к лечению пациентов с высоким риском.

Ключевые слова: COVID-19, SARS-CoV-2, прогнозирование исхода, факторы риска, коморбидные состояния.

https://doi.org/10.32921/2225-9929-2024-4-59-18-28
УДК 614.1;614.23
МРНТИ 76.01.73;76.75.75

Оригинальная статья

Оценка продуктивности здравоохранения Казахстана на системном, суб-секторальном и уровне основанном на болезни

Омирбаева Б.С. [1], Серикбаев Н.С. [2]

[1] *Руководитель управления макроэкономических исследований центра экономических исследований, Национальный научный центр развития здравоохранения имени Салидат Каирбековой, Астана, Казахстан. E-mail: b. omirbayeva@nrchd.kz*

[2] *Руководитель управления совершенствования финансирования и прогнозирования медицинской помощи центра экономических исследований, Национальный научный центр развития здравоохранения имени Салидат Каирбековой, Астана, Казахстан. E-mail: n. serikbayev@nrchd.kz*

Резюме

Цель исследования: вычислить показатели продуктивности здравоохранения Казахстана на системном, суб-секторальном и уровне основанном на болезни и провести сравнительный анализ со странами Организаций экономическоно сотрудничества (ОЭСР).

Методы. Рассчет показателей осуществлялся в соответствии с методикой расчета показателей продуктивности системы здравоохранения, утвержденной на экспертном совете РГП на ПХВ «Национальный научный центр развития здравоохранения имени Салидат Каирбековой». Проверка статистической значимости изменения частотных показателей проводилась с помощью статистического критерия хи-квадрат Пирсона. Для сравнения с показателями стран ОЭСР использовались данные из официального сайта по статистике ОЭСР.

Результаты. Анализ показателей продуктивности на национальном уровне отражает положительные сдвиги в части увеличения финансирования здравоохранения и снижения показателей заболеваемости. Данные за 2011-2022 годы показали снижающуюся тенденцию младенческой смертности в Казахстане.

Как показывает анализ, расходы на здравоохранение на душу населения увеличиваются ежегодно за период с 2011 по 2022 год и прирост текущих расходов на здравоохранение на душу населения за указанные годы составил 328%. Однако расходы на здравоохранение в Казахстане значительно ниже, чем в странах ОЭСР. Доля расходов домохозяйств от общих расходов на здравоохранение также увеличивается и в 2022 составила 31%, что является в 2 раза больше, чем средний показатель по странам-членам ОЭСР.

Оценка показала нарастающую нагрузку на 1 участкового врача за рассматриваемый период 2011-2022 года. При этом количество прикрепленного населения на одного участкового врача в Казахстане в 2 раза выше, чем в среднем в странах ОЭСР. Соответственно при увеличении нагрузки на участкового врача и росте финансирования здравоохранения расходы на оказание амбулаторной помощи в расчете на 1 участкового врача увеличились значительно. Оборот койки за рассматриваемый период увеличился на 27%, в то время как средняя длительность пребывания больного на койке в стационаре сократилось на 31%, что подтверждает более эффективную работу стационара.

Выводы. В целом, на основе данных медицинской статистики и Национальных счетов здравоохранения за период 2011-2022 годы было замечено увеличение ресурсов, используемых при производстве товаров и услуг здравоохранения. Однако анализ продуктивности за указанный период выявил отрицательную динамику по ряду показателей. Тем не менее, использование показателей продуктивности является информативным и значимым в контексте динамики демографических и эпидемиологических факторов населения, а также интенсивности проводимых мер в политике здравоохранения.

Ключевые слова: продуктивность, эффективность, показатели продуктивности, система здравоохранения.

Corresponding author: Bibigul Omirbayeva, Head of the Macroeconomic Research Department of the Center for Economic Research, Salidat Kairbekova National Research Center for Health Development, Astana, Kazakhstan.
Postal code: Z00T6E0
Address: Kazakhstan, Astana, Mangilik El, 20
Phone: +77081054711
E-mail: m.ardaq@nrchd.kz

J Health Dev 2024; 4 (59):18-28
Recieved: 27-08-2024
Accepted : 18-10-2024

Введение

Растущие расходы на здравоохранение являются проблемой в некоторых странах, как следствие наблюдается значительный интерес к повышению производительности здравоохранения [1-4]. Неэффективное использование ресурсов системы здравоохранения вызывает серьезную озабоченность по ряду причин:

1) это может лишить пациентов максимально возможной пользы для их здоровья в результате лечения, поскольку они не получают наилучшего возможного ухода, доступного в пределах ресурсов системы здравоохранения;

2) потребляя избыточные ресурсы, может оказаться так, что в лечении будет отказано другим пациентам, которые могли бы извлечь пользу из лечения, если бы ресурсы использовались лучше;

3) неэффективное использование ресурсов в секторе здравоохранения может привести к потере возможностей потребления в других секторах экономики, таких как образование;

4) растрата ресурсов на неэффективное медицинское обслуживание может снизить готовность общества вносить свой вклад в финансирование медицинских услуг, тем самым нанося ущерб социальной солидарности, эффективности системы здравоохранения и социальному благополучию [5].

В Казахстане существует ряд работ, посвященных оценке эффективности системы здравоохранения, однако в них исследуется продуктивность только на системном уровне, либо без привязки к денежным затратам на здравоохранение [6-8].

Целью работы стало определение показателей продуктивности здравоохранения Казахстана на системном, суб-секторальном и уровне, основанном на болезни, и провести сравнительный анализ со странами Организации экономического сотрудничества и развития (ОЭСР). Вместе с тем, применялись данные о расходах на здравоохранение из Национальных счетов здравоохранения с целью расчета денежных индикаторов продуктивности.

Материалы и методы

Рассчет показателей осуществлялся в соответствии с методикой расчета показателей продуктивности системы здравоохранения, утвержденной на экспертном совете РГП на ПХВ «Республиканский центр развития здравоохранения» [1]. Согласно методике, продуктивность в секторе здравоохранения измеряется на трех уровнях:

1) на системном уровне (макроуровень);

2) на субсекторальном уровне (например, больницы, первичной медико-санитарной помощи, фармацевтическая сфера и т.д.)

3) на уровне заболеваний (например, онкологическая помощь, помощь в случае сердечно-сосудистых заболеваний, диабета, т.д.).

Так как каждый из показателей, входящих в вышеуказанные категории, описывает разные аспекты сферы здравоохранения, они требуют агрегированных на разных уровнях данные. Для расчета показателей использовались данные о расходах на здравоохранение из Национальных счетов здравоохранения, а также другие данные из информационных систем Министерства здравоохранения Республики Казахстан (МЗ РК) (Информационная система «Электронный регистр стационарных больных» (ИС ЭРСБ); (Информационная система «Система управления качеством медицинских услуг» (ИС СУКМУ)), годовых отчетных статистических форм МЗ РК, статистического сборника МЗ РК, официального сайта Комитета по статистике Министерства национальной экономики РК.

Проверка статистической значимости изменения частотных показателей проводилась с помощью статистического критерия хи-квадрат Пирсона. Для сравнения с показателями стран ОЭСР использовались данные из официального сайта ОЭСР [2].

Результаты

Коэффициенты младенческой и материнской смертности являются важными статистическими показателями, которые характеризуют качество и уровень организации работы современных родовспомогательных учреждений.

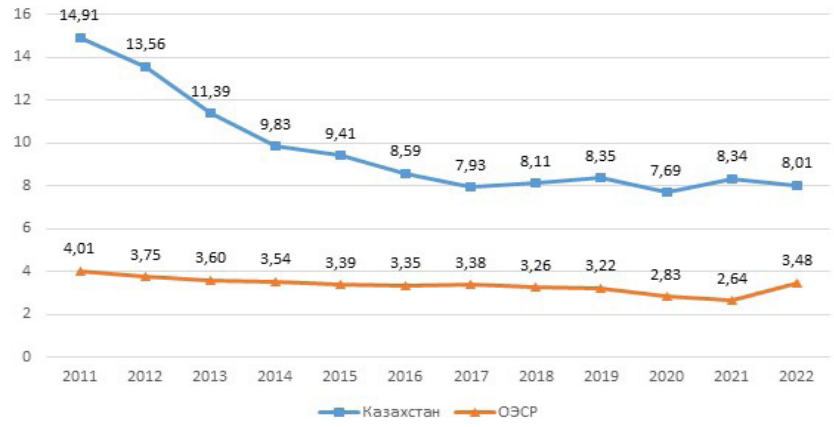


Рисунок 1 - Коэффициент младенческой смертности (от момента рождения до достижения возраста 1 года, на 1000 живорожденных) за 2011-2022 годы

Данные показывают снижающуюся тенденцию младенческой смертности в РК за 2011-2022 годы. В 2022 году по сравнению с предыдущим годом данный показатель снизился на 4%, а по сравнению с началом рассматриваемого периода – на 46%. Это произошло во многом благодаря улучшению услуг в родовспоможении, уходу при преждевременных родах, лечению тяжелых инфекционных заболеваний у детей (такие как пневмония, диарея, сепсис у новорожденных) и лечение острой недостаточности питания.

Тем не менее, в сравнении со странами ОЭСР данный показатель является достаточно высоким: в среднем по странам-членам ОЭСР показатель младенческой смертности на 1000 живорожденных составил 3,4 в 2022 году, что в 2,4 раза ниже, чем в РК (Рисунок 1).

Показатель коэффициента материнской смертности 2022 году равнялся 17,0 на 100 000 живорожденных, что показывает значительное снижение на 62% по сравнению с 2021 годом. Стоит отметить, резкий рост показателя в 2020 и 2021 годах, что связано с пандемией COVID-19. По итогам 2021 года в РК показатель материнской смертности увеличился на 22 % и составил 44,7 на 100 тыс. живорожденных против 36,5 в 2020 году. В структуре причин материнской смертности в 70% занимали пневмонии и коронавирусная инфекция. Рост «избыточных» смертей от COVID-19 связан с инфекционным агентом, высокой патогенностью штамма коронавируса «дельта», тяжелым и молниеносным течением заболевания, соматическим здоровьем матерей, особенностями физиологического состояния беременных и постковидными осложнениями [2]. В сравнении со странами-членами ОЭСР данный показатель также вырос в период пандемии, однако менее выражено (Рисунок 2).

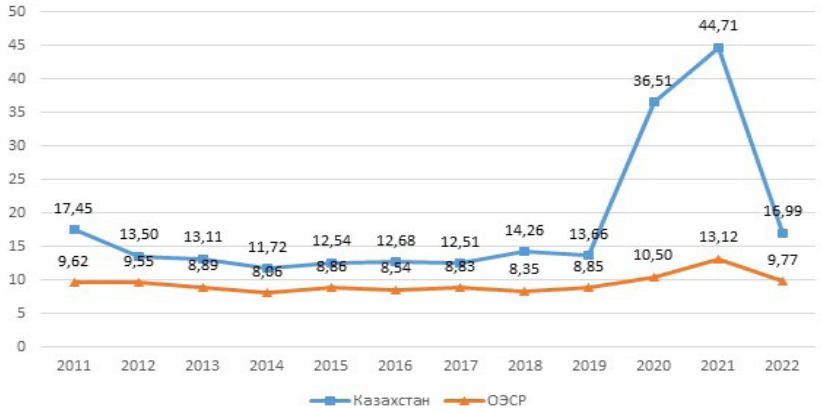


Рисунок 2 - Коэффициент материнской смертности за 2011-2022 годы (на 100 000 живорожденных)

В целях реализации среднесрочных и долгосрочных стратегических документов РК и Целей устойчивого развития Организаций Объединенных Наций, была разработана Концепция по охране материнства и детства на 2023-2030 годы. В качестве целевых индикаторов данной Концепции заявлено доведение показателей младенческой смертности до 7,1 на 1000 родившихся живыми и материнской смертности до 13,0 на 100 тыс. родившихся живыми в 2030 году [2].

Показатель общей заболеваемости населения РК с 2011 по 2015 годы показывал тенденцию снижения (на 4,9% с 2011 по 2015 годы). Однако в 2016 году данный показатель увеличился на 6,2% в сравнении с предыдущим годом. С 2017 года снова наблюдается снижение общей заболеваемости вплоть до 2022 года. Аналогичная тенденция наблюдается при рассмотрении динамики показателя первичной заболеваемости (Рисунок 3).

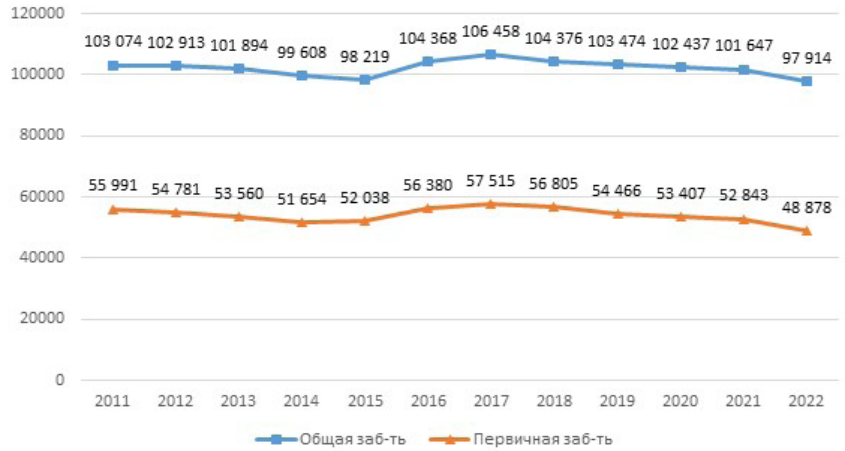


Рисунок 3 - Общая и первичная заболеваемость в Казахстане на 100 тыс. человек за 2011-2022 годы

За период с 2011 по 2022 годы расходы на здравоохранение на душу населения увеличиваются ежегодно. Так, прирост текущих расходов на здравоохранение на душу населения за указанные годы составил 328%, в то время как государственные расходы на душу населения на этот же период увеличились на 288%. В 2022 году расходы на здравоохранение на душу населения в Казахстане составили 195 281 тенге (424 долл. США) (Рисунок 4).

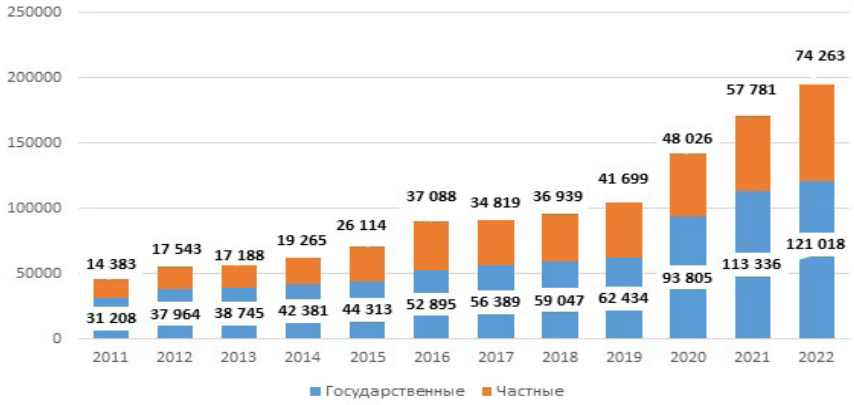


Рисунок 4 - Расходы на здравоохранения на душу населения за 2011-2022 годы, в тыс. тенге

Для сравнения, в странах ОЭСР, таких как Франция, Германия, Эстония, расходы на здравоохранение на душу населения в 2022 году составили 6 516,6 (3 000 764 тенге), 8 010,9 (3 688 859 тенге), 3 091,4 (1 423 527 тенге) долларов США соответственно. В целом по ОЭСР расходы на здравоохранение на душу населения в 2022 году составили 5 010 долларов США по паритету покупательной способности (ППС), а из них из государственных схем финансирования - 3 899 долларов США по ППС. Как следствие недостаточного финансирования здравоохранения в Казахстане сохраняется высокий уровень частных расходов на получение медицинских услуг (Рисунок 5).

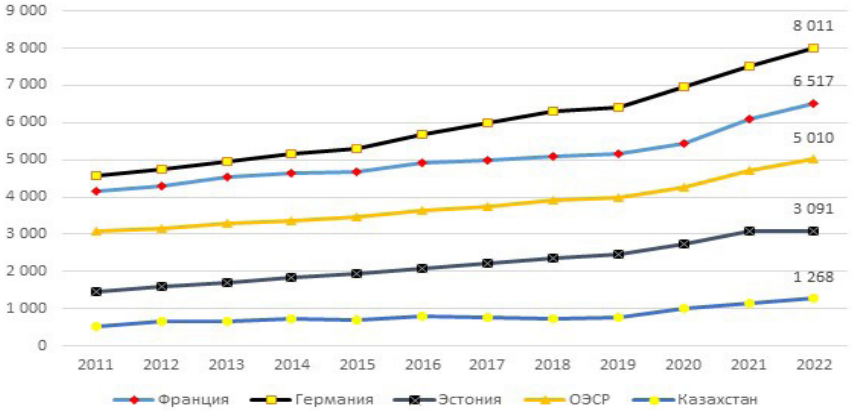


Рисунок 5 - Расходы на здравоохранения на душу населения за 2011-2022 годы, в долларах США по паритету покупательской способности

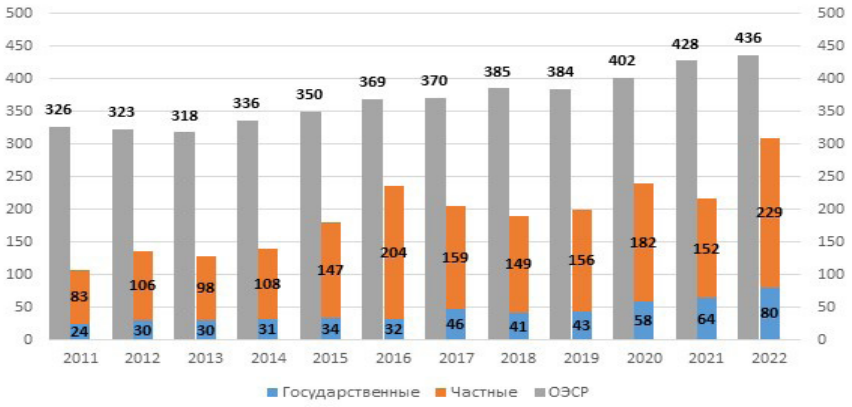


Рисунок 6 - Расходы на ЛС и ИМН на душу населения за 2011-2022 годы, в долларах США по паритету покупательской способности

Индикатор расходов на лекарственные средства на душу населения также показывают тенденцию роста. Общие расходы на лекарственные средства за 2011-2020 годы выросли в 3 раза. Несмотря на увеличивающуюся долю государственных расходов на предоставление лекарственных средств, их вклад по прежнему низкий.

Так, на предоставление лекарственных средств расходы государства в 2022 году составили 12 347 тенге на душу населения (80 долл. США) или 35% от текущих расходов на медицинские товары.

Для сравнения, государственные расходы на лекарственные средства в странах ОЭСР на душу населения составляют 436 долларов США по ППС (Рисунок 6).

Как показывает Таблица 1, доля расходов домохозяйств в общих расходах на здравоохранение в целом за период 2011-2022 годы увеличилась. Стоит отметить, что в течении рассматриваемого периода данный показатель колеблется в пределах 25%-36% (Рисунок 7).

В таких странах ОЭСР, как Великобритания, Германия, Словения данный показатель составляет 14%, 11%, 13% соответственно, а в среднем по странам ОЭСР - 17%.

По оценкам ВОЗ, устойчивой считается такая система здравоохранения, в которой доля частных расходов в общих расходах на здравоохранение составляет не более 15-20% [3, 4, 5, 6, 7]. Превышение этого показателя повышает риск для населения, связанный с приближением их к черте бедности вследствие болезней, которые, в свою очередь, могут затронуть все сферы, а также привести к ухудшению здоровья и демографических показателей.

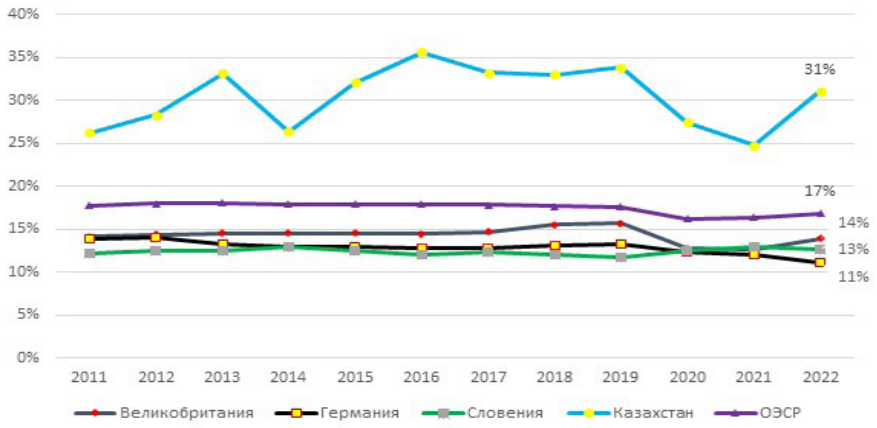


Рисунок 7 - Доля расходов домохозяйств в общих расходах на здравоохранение за период 2011-2022 годы

Суб-секторальный уровень. Чтобы сделать более детализированную оценку состояния системы здравоохранения страны необходимо провести анализ непосредственных итогов и результатов по отношению к затрачиваемым ресурсам на уровне отдельных видов медицинских услуг. На долю первичной медицинской помощи, больничных и фармацевтических услуг приходится три четверти всех затрат, выделяемых на здравоохранение, и именно эти виды услуг являются главной целью для наращивания преимуществ от повышения эффективности работы. Поэтому на суб-секторальном уровне выделяются амбулаторный и стационарный уровни оценки продуктивности системы здравоохранения.

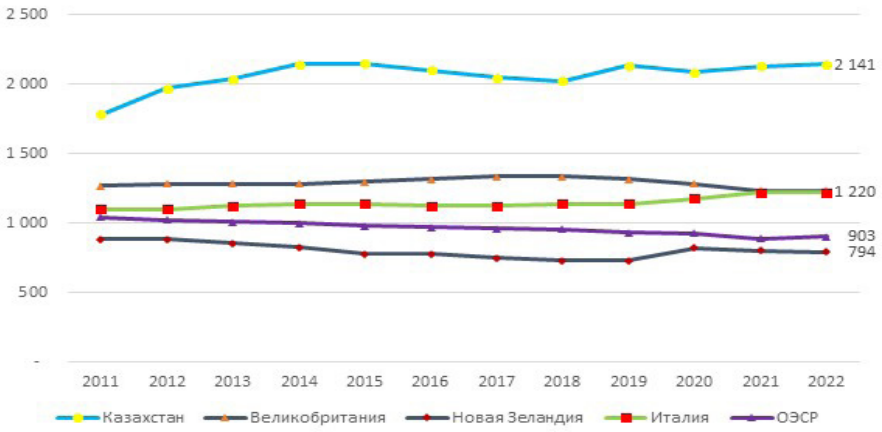


Рисунок 8 - Число прикрепленных на 1 участкового врача (ВОП, терапевт, педиатр) за 2011-2022 годы

Амбулаторный уровень. Как показывает Таблица 1, расходы на оказание амбулаторной помощи за рассматриваемый период неизменно росли. Расходы выросли в 5 раз по сравнению с началом рассматриваемого периода, что свидетельствует о стремлении государства улучшить ситуацию в сфере здравоохранения путем увеличения финансирования.

В Казахстане нагрузка на 1 участкового врача (ВОП, педиатра, терапевта) в 2022 году составила 2141 человек. В целом с 2011 года наблюдается рост данного показателя, при этом очень важно сократить данный показатель в ближайшие годы для увеличения продуктивности лечебно-профилактической работы врача (Рисунок 8). Согласно Государственной программе развития здравоохранения Республики Казахстан «Денсаулық» на 2016-2019 годы, этот показатель должен был достигнуть значения 1 577 человек в 2019 году. Для сравнения в среднем в странах-членах ОЭСР, данный показатель в 2022 году равен 903. Стоит отметить, что согласно методике формирования данного показателя в расчет не были взяты педиатры, в то время как в Казахстане количество педиатров учитывают вместе с врачами ВОП и терапевтами [8]. Однако не смотря на данную разницу в расчетах, показатель Казахстана намного выше, чем в странах ОСЭР.

Стационарный уровень. В стационаре приоритетом является увеличение оборота больничной койки и сокращение средней длительности больничного пребывания. Во многом это обусловлено методом оплаты по клинико-затратным группам (КЗГ) [9]. Динамика показателей изображенная на Рисунке 9 показывает, что данные цели достигаются: оборот больничной койки в течение рассматриваемого периода увеличился на 27% и составил 32 выбывших больных на одно койко-место в 2022 году, а средняя длительность больничного пребывания сократилось на 31% и составила 8,5 койко дней.

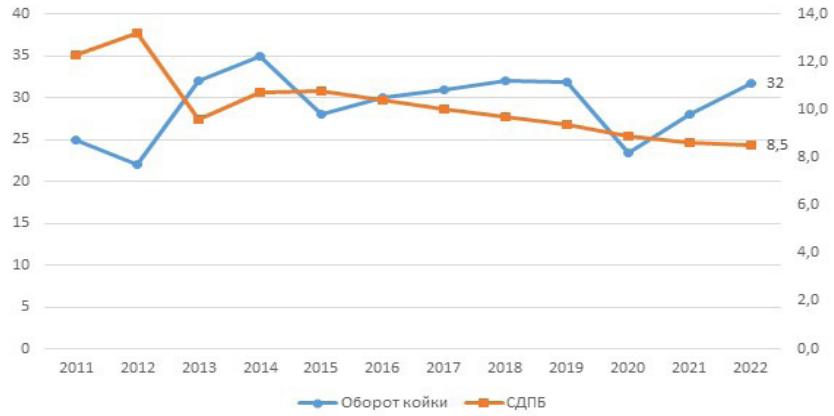


Рисунок 9 - Оборот койки и средняя длительность пребывания больного на койке за период 2011-2022 года

Обеспеченность больничными койками за рассматриваемый период сократилась на 22%. Снижение коечного фонда также связано с оптимизацией работы койки, продиктованной методом оплаты по клинико-затратным группам. Однако пандемия COVID-19 высветила необходимость наличия достаточного количества больничных коек и гибкости в их использовании для удовлетворения любого неожиданного всплеска спроса на интенсивную терапию [10].

На текущий момент в Казахстане показатели обеспеченности больничными койками немного выше, чем в странах ОЭСР.

Расходы на стационарную помощь в расчете на 1 врача, так же как и расходы на стационарную помощь в расчете на 1 койку, увеличивается ежегодно, хотя с разными темпами роста. Наибольший прирост наблюдается после 2019 года внедрения обязательного медицинского страхования. В данный период расходы на оказание медицинской помощи в условиях дневного, круглосуточного стационара, высокотехнологичную медицинскую помощь выросли более чем в 2 раза [11].

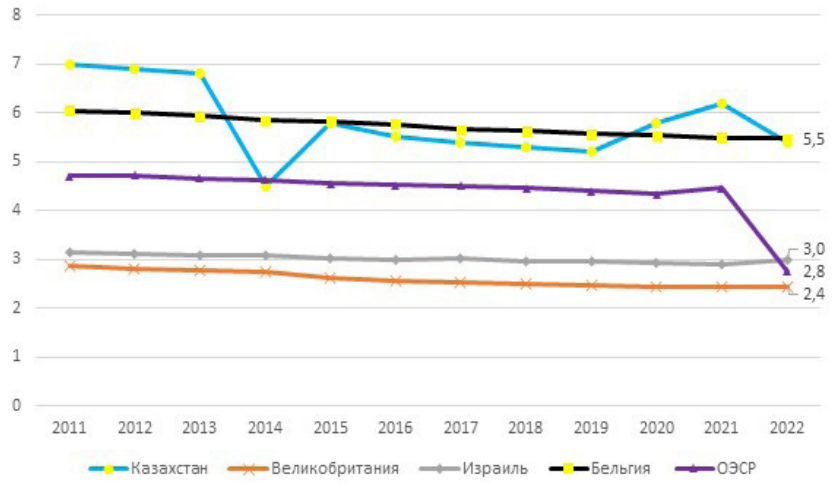


Рисунок 10 - Обеспеченность койками на 1000 населения за 2011-2022 года

Послеоперационные осложнения и послеоперационная летальность значительно выросли в период пандемии, на фоне сокращения объема плановой госпитализации в хирургические стационары (Рисунок 11).

Уровень, основанный на болезни. В динамике за последние 20 лет в стране заболеваемость онкологическими заболеваниями увеличилась на 25%, смертность от рака снизилась на 33%. Аналогичная тенденция наблюдается в странах ОЭСР. При этом, показатель 5-летней выживаемость при раке в странах ОЭСР выше чем в Казахстане [12].

В Казахстане наблюдается снижение показателя пятилетней выживаемости больных со злокачественными новообразованиями (ЗНО): раком молочной железы, шейки матки и трахеи, бронхов, легкого за период с 2011 г. по 2022 годы (Рисунок 12). Это означает, что доля людей, которые живут с данным диагнозом 5 и более лет, снижается. Индикатор 5-летней выживаемости с онкологическими заболеваниями отражает процент людей, которые живы спустя 5 лет и более после обнаружения рака. 5 лет - критический срок, когда у большинства возможно возвращение заболевания. Наибольшее снижение показателя за период 2011-2022 года наблюдается при ЗНО трахеи, бронхов, легкого (26%). При этом даже меньшее изменение показателя при новообразованиях молочной железы (10%) и шейки матки (12%) также оказались статистически незначимыми ($p<0.05$).

Рисунок 11 - Частота послеоперационных осложнений, послеоперационная летальность и больничная летальность за период 2011-2022 года

Пятилетняя выживаемость больных со ЗНО молочной железы и трахеи, бронхов, легкого в Казахстане составляет 54% и 26% соответственно, тогда как в США данные показатели равны 90% и 26% [13]. Показатель 5-летней выживаемости со ЗНО шейки матки в Казахстане (54%) ниже такого же показателя в США (63%).

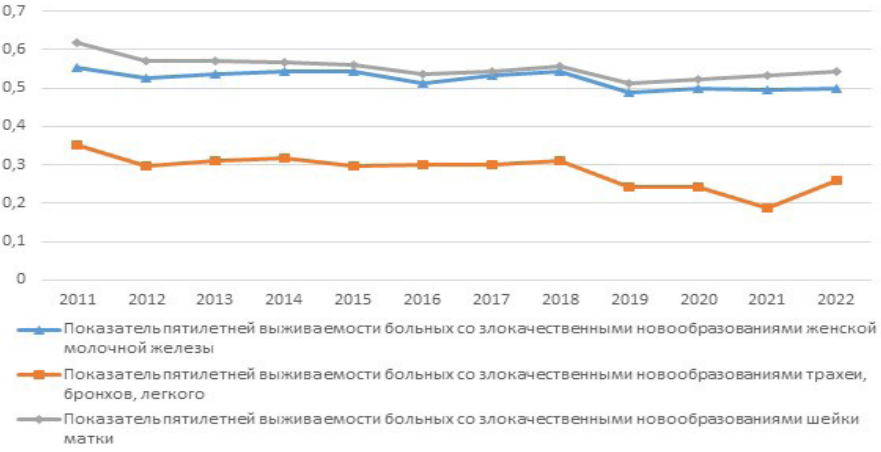


Рисунок 12 - 5-летняя выживаемость больных со злокачественными новообразованиями

По показателю доли первичной заболеваемости на 3-4 стадии среди общей первичной заболеваемости ЗНО молочной железы, шейки матки и трахеи, бронхов, легкого также наблюдается его снижение за период 2011-2022 годы (Рисунок 13). Снижение этого показателя обозначает выявление данных заболеваний на 1-2 стадиях и уменьшение процента больных на последних стадиях рака молочной железы, шейки матки и трахеи, бронхов, легкого. Как показывает Рисунок 13, в стране доля первичной заболеваемости выявленной на 3 и 4 стадиях среди общей заболеваемости ЗНО трахеи, бронхов, легкого показала наибольшее снижение, однако снижение показателей при ЗНО молочной железы и шейки матки также показали статистически значимую разницу ($p<0.05$).

Обсуждение

В целях более достоверной оценки эффективности системы здравоохранения необходимо улучшить показатели продуктивности, основываясь на преобладании неденежных индикаторов и доступности данных. Так многие меры здоровья населения определяются не столько факторами здоровья, сколько детерминантами вне сектора здравоохранения. Согласно Докладу о состоянии здоровья в мире (2002) курение табака является второй по значимости причиной смерти в мире и непосредственно ответственен за каждую десятую смерть в мире [21].

Рисунок 13 - Доля первичной заболеваемости выявленной на 3-4 стадии среди общей первичной заболеваемости злокачественными новообразованиями

Ряд исследований потверждают влияние показателя потребления табака на здоровье населения [22-24]. Изменение показателя потребления табака на 10% приводит к снижению преждевременной смертности 1,5%-2,5%. Чрезмерное употребление алкоголя также также обладает многочисленными вредные последствия для здоровья. Эмпирические результаты показывают, что различия в потреблении алкоголя могут объяснить разрыв в ожидаемой продолжительности жизни до 1,8 лет между странами с высоким употреблением алкоголя (Франция, Венгрия, Ирландия) и странами с низким употреблением (Турция) [22].

Таблица 1 - Расходы на здравоохранение за 2011-2022 годы

Показатель	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Расходы на системном уровне												
Расходы на здравоохранение на душу населения, тенге	36 310	44 080	55 706	55 860	67 768	70 350	89 721	91 586	94 650	104 133	140 441	172 298
Гос. расходы на здравоохранение на душу населения, тенге	24 828	31 380	38 029	38 790	48 611	44 442	53 547	56 789	57 657	62 434	92 415	114 520
Частные расходы на здравоохранение на душу населения, тенге	11 453	12 640	17 658	17 013	19 087	25 870	36 074	34 736	36 939	41 675	47 981	57 618
Доля расходов домохозяйств на прямую оплату услуг здравоохранения от общих расходов на здравоохранение, %	21	23	25	20	27	36	33	33	34	28	25	31
Расходы на уровне амбулаторно-поликлинической помощи												
Расходы на оказание амбулаторной помощи в расчете на 1 жителя, тенге	11 029	13 939	15 375	20 926	24 566	25 416	26 536	31 257	36 808	42 774	54 385	68 172
Расходы на оказание амбулаторной помощи в расчете на 1 участкового врача (ВОП, терапевт, педиатр), тыс. тенге	23 514	29 806	33 585	46 348	54 327	54 221	54 579	63 242	77 282	87 720	114 307	146 201
Расходы на оказание амбулаторной помощи в расчете на 1 визит к участковому врачу (ВОП, терапевт, педиатр), тенге	1 575	2 034	2 318	3 227	4 028	4 066	4 395	5 858	6 911	8 454	10 479	13 381
Расходы на стационарную помощь												
Расходы на стационарную помощь в расчете на 1 врача, тыс. тенге	4 025 038	4 866 929	5 320 036	4 567 333	4 752 169	6 761 261	6 923 422	6 977 301	7 201 020	8 738 683	13 426 534	13 711 372
Расходы на стационарную помощь в расчете на 1 койку, тыс. тенге	2 129 228	2 775 883	3 268 409	2 989 239	3 232 842	4 922 455	5 021 004	5 169 051	5 537 739	5 240 783	9 231 947	10 155 449
Расходы на стационарную помощь в расчете на 1 операцию, тыс. тенге		407 976	445 825	384 145	387 175	778 230	760 501	710 188	751 992	1 027 803	1 575 440	1 362 684

Все большее признание получает воздействие загрязнения воды, почвы, шума и воздуха на здоровье. Исследования показывают, что политика стран Евросоюза, направленная на снижение выбросов в атмосферных воздух, способствовало улучшению состояния здоровья населения - связь между загрязнением воздуха, определяемым выбросами NOx, и состоянием здоровья неизменно отрицательна и довольно устойчива к изменениям в спецификациях моделей [22].

Как показывает международный опыт, помимо медицинской эффективности, предлагается принять во внимание социальную и экономическую эффективность, так как на системном уровне на результат здоровья влияют не только факторы здравоохранения. В целом, ключом к достижению прогресса в измерении сравнительной эффективности на разных уровнях является как можно большее укрепление связей между сбором данных на входах (inputs) и результатов (outcomes).

Выводы

Анализ показателей продуктивности на национальном уровне отражает положительные сдвиги в части увеличения финансирования здравоохранения и снижения показателей заболеваемости. Данные за 2011-2022 годы показали снижающуюся тенденцию младенческой смертности в РК.

Как показывает анализ, расходы на здравоохранение на душу населения увеличиваются ежегодно за период с 2011 по 2022 год и прирост текущих расходов на здравоохранение на душу населения за указанные годы составил 328%. Однако расходы на здравоохранение в Казахстане значительно ниже, чем в странах ОЭСР. Доля расходов домохозяйств от общих расходов на здравоохранение также увеличивается и в 2022 составила 31%, что является в 2 раза больше, чем средний показатель по странам-членам ОЭСР.

Оценка показала нарастающую нагрузку на 1 участкового врача за рассматриваемый период 2011-2022 года. При этом количество прикрепленного населения на одного участкового врача в Казахстане в 2 раза выше, чем в среднем в странах ОЭСР. Соответственно при увеличении нагрузки на участкового врача и росте финансирования здравоохранения расходы на оказание амбулаторной помощи в расчете на 1 участкового врача увеличились значительно. Оборот койки за рассматриваемый период увеличился на 27%, в то время как средняя длительность пребывания больного на койке в стационаре сократилось на 31%, что подтверждает более эффективную работу стационара.

В целом, на основе данных медицинской статистики и Национальных счетов здравоохранения за период 2011-2022 годы было замечено увеличение ресурсов, используемых при производстве товаров и услуг здравоохранения. Однако анализ продуктивности за указанный период выявил отрицательную динамику по ряду показателей. Тем не менее, использование показателей продуктивности является информативным и значимым в контексте динамики демографических и эпидемиологических факторов населения, а также интенсивности проводимых мер в политике здравоохранения.

Конфликт интересов. Авторы заявляют об отсутствии конфликта интересов.

Вклад авторов. Концептуализация – Б.С.; методология – Н.С.; проверка – Б.С.; формальный анализ – Б.С., Н.С.; написание (оригинальная черновая подготовка) – Ғ.О.; написание (обзор и редактирование) - Н.С.

Финансирование. Нет.

Литература

1. Методика расчета показателей продуктивности системы здравоохранения, Республиканский центр развития здравоохранения, Астана, 2016.

Metodika rascheta pokazatelej produktivnosti sistemy zdravoohranenija, Respublikanskij centr razvitija zdravoohranenija, Astana, 2016

2. Statistical online platform of the OECD. Website. [Cited 17 Sep 2024]. Available from URL: https://stats.oecd.org

3. Swinehart K.D., Smith A.E. Customer focused health-care performance instruments: making a case for local measures. International Journal of Health Care Quality Assurance. 2004; 17(1): 9-16. [Crossref]

4. Lillrank P., Groop P.J., Malmström T.J. Demand and supply-based operating modes-a framework for analyzing health care service production. Milbank Q. 2010; 88(4): 595-615. [Crossref]

5. Cylus J., Papanicolas I., Smith P.C. A framework for thinking about health system efficiency. Health system efficiency. 2016; 1. [Google Scholar]

6. Omir A.S., Abilkaiyr N.A. Measuring main public health indicators of the republic of Kazakhstan. Econ Strateg Pract. 2021; 16(3): 234-8. [Crossref]

7. Оразымбетова А.Ж., Султанбекова Г.К. Оценка эффективности реализованных государственных программ в сфере здравоохранения Казахстана //Journal of Health Development. - 2021. - Т. 2. - №. 42. - С. 32-40. [Google Scholar]

Orazy`mbetova A.Zh., Sultanbekova G.K. Ocenka e`ffektivnosti realizovanny`x gosudarstvenny`x programm v sfere zdravooxraneniya Kazaxstana (Evaluation of the effectiveness of implemented state programs in the field of healthcare in Kazakhstan) [in Russian]. Journal of Health Development. 2021; 2(42): 32-40. [Google Scholar]

8. Снижение младенческой и детской смертности в Казахстане: Вызовы и Перспективы. 2019. [Google]

Snizhenie mladencheskoj i detskoj smertnosti v Kazahstane: Vyzovy i Perspektivy (Reduction of infant and child mortality in Kazakhstan: Challenges and Prospects) [in Russian]. 2019. [Google]

9. Об утверждении Концепции развития службы охраны здоровья матери и ребенка в РК на 2023-2030 годы. Каждая женщина – каждый ребенок. 10 май 2023 г. Режим доступа: https://legalacts.egov.kz/npa/view?typeComment=6&pageComment=3&id=14551727

Ob utverzhdenii Koncepcii razvitiya sluzhby` oxrany` zdorov`ya materi i rebenka v RK na 2023-2030 gody`. Kazhdaya zhenshhina – kazhdy`j rebenok (On approval of the Concept of development of the maternal and Child Health service in the Republic of Kazakhstan for 2023-2030. Every woman is every child) [in Russian] 10 maj 2023 g. Rezhim dostupa: https://legalacts.egov.kz/npa/view?typeComment=6&pageComment=3&id=14551727

10. Xu K., Evans D.B., Carrin G., Aguilar-Rivera A.M.et al. Protecting households from catastrophic health spending. Health affairs. 2007; 26: 972-983. [Crossref]

11. Xu K., Evans D.B., Kawabata K., Zeramdini R. et al. Household catastrophic health expenditure: a multicountry analysis. The lancet. 2003; 362(9378): 111-117. [Google Scholar]

12. WHO. World health statistics 2019: monitoring health for the SDGs sustainable development goals. Geneva: World Health Organization, 2019. Website. [Cited 17 Sep 2024]. Available from URL: https://www.who.int/publications/i/item/9789241565707

13. Xu K., Saksena P., Jowett M., Indikadahena C. et al. Exploring the thresholds of health expenditure for protection against financial risk. World health report. 2010; 3: 328-33. [Google Scholar]

14. Adisa O. Investigating determinants of catastrophic health spending among poorly insured elderly households in urban Nigeria. Int J Equity Health. 2015; 14: 1-11. [Google Scholar]

15. OECD Health Statistics 2021 Definitions, Sources and Methods. Physicians by categories. OECD, OECD Health Statistics 2021. [Google Scholar]

16. Ma Y., Wang W. The impact of diagnosis related group payment on the performance of public hospitals. Am J Transl Res. 2021; 13(6): 6796-6801. [Google Scholar]

17. OECD/European Union (2020), Health at a Glance: Europe 2020: State of Health in the EU Cycle, OECD Publishing. November 19, 2020. [Google Scholar]

18. Проект доклада Министра здравоохранения РК А. Ғиният на Правительственный час. 9.10.2023. Режим доступа: https://parlam.kz/mazhilis/download/21049

Proekt doklada Ministra zdravoohranenija RK A. Ginijat na Pravitel'stvennyj chas (Draft report of the Minister of Health of the Republic of Kazakhstan A. Giniyat for the Government hour). 9.10.2023. Rezhim dostupa: https://parlam.kz/mazhilis/download/21049

19. Доклад Министра здравоохранения на заседании Правительства под председательством Премьер-Министра РК касательно вопросов онкологической помощи населению. В Казахстане за последние 20 лет смертность от онкологических заболеваний снизилась на 33%. 28.02.2023. Режим доступа: https://primeminister.kz/ru/news/v-kazakhstane-za-poslednie-20-let-smertnost-ot-onkologicheskikh-zabolevaniy-snizilas-na-33-23189

Doklad Ministra zdravooxraneniya na zasedanii Pravitel`stva pod predsedatel`stvom Prem`er-Ministra RK kasatel`no voprosov onkologicheskoj pomoshhi naseleniyu. V Kazaxstane za poslednie 20 let smertnost` ot onkologicheskix zabolevanij snizilas` na 33%. (In Kazakhstan, over the past 20 years, mortality from cancer has decreased by 33%) [in Russian]. 28.02.2023. Rezhim dostupa: https://primeminister.kz/ru/news/v-kazakhstane-za-poslednie-20-let-smertnost-ot-onkologicheskikh-zabolevaniy-snizilas-na-33-23189

20. American Cancer Society. Global Cancer Facts & Figures 4th Edition. Atlanta: American Cancer Society; 2018. Website. [Cited 17 Sep 2024]. Available from URL: https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/global-cancer-facts-and-figures/global-cancer-facts-and-figures-4th-edition.pdf

21. World Health Organization. The world health report 2002: reducing risks, promoting healthy life. World Health Organization. 2002. [Google]

22. Joumard I., Hoeller P., Andre C., Nicq C. Health care systems: Efficiency and policy settings. 2010. [Google]

23. Berger M.C., Messer J. Public financing of health expenditures, insurance, and health outcomes. Applied Economics. 2002; 34(17): 2105-2113. [Crossref]

24. Crémieux P.Y., Ouellette P., Pilon C. Health care spending as determinants of health outcomes. Health economics. 1999; 8(7): 627-639. [Crossref]

Қазақстанның денсаулық сақтау өнімділігін жүйелі, суб-секторлық және ауру негізделген деңгейде бағалауы

Өмірбаева Б.С. [1], Серікбаев Н.С. [2]

[1] Экономикалық зерттеулер орталығының макроэкономикалық зерттеулер басқармасының басшысы, Салидат Қайырбекова атындағы Ұлттық ғылыми денсаулық сақтауды дамыту орталығы, Астана, Қазақстан. E-mail: b. omirbayeva@nrchd.kz

[2] Экономикалық зерттеулер орталығының медициналық көмекті қаржыландыру мен болжауды жетілдіру басқармасының басшысы, Салидат Қайырбекова атындағы Ұлттық ғылыми денсаулық сақтауды дамыту орталығы, Астана, Қазақстан. E-mail: n. serikbayev@nrchd.kz

Түйіндеме

Зерттеудің мақсаты: Қазақстанның денсаулық сақтау өнімділігінің көрсеткіштерін ауруға негізделген, жүйелі және суб-секторлық деңгейде есептеу және ЭЫДҰ елдерімен салыстырмалы талдау жүргізу

Әдістері. Көрсеткіштерді есептеу «Республикалық денсаулық сақтауды дамыту орталығы» ШЖҚ РМК сараптамалық кеңесінде бекітілген денсаулық сақтау жүйесінің өнімділік көрсеткіштерін есептеу әдістемесіне сәйкес жүзеге асырылды. Жиілік көрсеткіштерінің өзгеруінің статистикалық маңыздылығын тексеру Пирсонның хи-квадраттық статистикалық критерийі арқылы жүргізілді. ЭЫДҰ елдерінің көрсеткіштерімен салыстыру үшін экономикалық ынтымақтастық ұйымдарының статистикасы жөніндегі ресми сайттың деректері пайдаланылды.

Нәтижесі. Ұлттық деңгейдегі өнімділік көрсеткіштерін талдау денсаулық сақтауды қаржыландыруды ұлғайту және сырқаттанушылық көрсеткіштерін төмендету бөлігіндегі оң өзгерістерді көрсетеді. 2011-2022 жылдардағы деректер ҚР-да сәбилер өлімінің төмендеу үрдісін көрсетті. Талдау көрсеткендей, жан басына шаққандағы денсаулық сақтау шығындары 2011-2022 жылдар аралығында жыл сайын артып келеді және аталған жылдары жан басына шаққандағы денсаулық сақтау шығындарының өсімі 328% құрады. Алайда, Қазақстанда денсаулық сақтау шығындары ЭЫДҰ елдеріне қарағанда едәуір төмен. Жалпы денсаулық сақтау шығындарынан үй шаруашылықтары шығыстарының үлесі де артып келеді және 2022 жылы 31%

құрады, бұл ЭЫДҰ-ға мүше елдер бойынша орташа көрсеткіштен 2 есе көп. Бағалау 2011-2022 жылдың қарастырылып отырған кезеңінде 1 учаскелік дәрігерге артып келе жатқан жүктемені көрсетті. Бұл ретте Қазақстанда бір учаскелік дәрігерге тіркелген халықтың саны ЭЫДҰ елдеріндегі орташа көрсеткіштен 2 есе жоғары. Тиісінше, учаскелік дәрігердің жүктемесінің артуы және денсаулық сақтауды қаржыландырудың өсуі кезінде 1 учаскелік дәрігердің есебінен амбулаториялық көмек көрсетуге жұмсалатын шығындар айтарлықтай өсті. Қарастырылып отырған кезеңде төсек айналымы 27%-ға өсті, ал науқастың стационарда төсекте болуының орташа ұзақтығы 31%-ға қысқарды, бұл стационардың неғұрлым тиімді жұмысын растайды.

Қорытынды. Жалпы, медициналық статистика мен ұлттық денсаулық сақтау шоттарының деректері негізінде 2011-2022 жылдар кезеңінде денсаулық сақтау тауарлары мен қызметтерін өндіруде пайдаланылатын ресурстардың ұлғаюы байқалды. Алайда, көрсетілген кезеңдегі өнімділікті талдау бірқатар көрсеткіштер бойынша теріс динамиканы анықтады. Дегенмен, өнімділік көрсеткіштерін пайдалану халықтың демографиялық және эпидемиологиялық факторларының динамикасы, сондай-ақ денсаулық сақтау саясатында жүргізіліп жатқан шаралардың қарқындылығы тұрғысынан ақпараттық және маңызды болып табылады.

Түйін сөздер: өнімділік, тиімділік, өнімділік көрсеткіштері, денсаулық сақтау жүйесі.

Assessment of Kazakhstan's healthcare productivity at the system-wide, sub-sector and disease-based levels

Bibigul Omirbayeva [1], Nursultan Serikbayev [2]

[1] *Head of the Macroeconomic Research Department of the Center for Economic Research, Salidat Kairbekova National Research Center for Health Development, Astana, Kazakhstan. E-mail: b. omirbayeva@nrchd.kz*

[2] *Head of the Department for Improving the Financing and Forecasting of Medical Care of the Center for Economic Research, Salidat Kairbekova National Research Center for Health Development, Astana, Kazakhstan. E-mail: n. serikbayev@nrchd.kz*

Abstract

Objective: Calculate the indicators of Kazakhstan's healthcare productivity at the systemic, subsectoral and disease-based levels and conduct a comparative analysis with OECD countries.

Methods. The calculation of the indicators was carried out in accordance with the methodology for calculating the performance indicators of the healthcare system, approved by the expert Council of the Republican Center for Health Development. Verification of the statistical significance of changes in frequency indicators was carried out using Pearson's chi-squared statistical criterion. For comparison with the indicators of the OECD countries, data from the official website on statistics of Economic Cooperation Organizations were used.

Results. The analysis of productivity indicators at the national level reflects positive developments in terms of increasing healthcare funding and reducing morbidity rates. Data for 2011-2022 showed a declining trend in infant mortality in the Republic of Kazakhstan.

As the analysis shows, health care expenditures per capita increase annually for the period from 2011 to 2022 and the increase in current health care expenditures per capita for these years amounted to 328%. However, healthcare costs in Kazakhstan are significantly lower than in OECD countries. The share of household expenditures from total healthcare expenditures is also increasing and in 2022 amounted to 31%, which is 2 times more than the average for OECD member countries.

The assessment showed an increasing burden on 1 district doctor for the period 2011-2022. At the same time, the number of attached population per district doctor in Kazakhstan is 2 times higher than the average in OECD countries. Accordingly, with an increase in the burden on the district doctor and an increase in health care funding, the costs of outpatient care per 1 district doctor increased significantly. The turnover of beds during the period under review increased by 27%, while the average duration of a patient's stay in a hospital bed decreased by 31%, which confirms the more efficient operation of the hospital.

Conclusion. In general, based on the data of medical statistics and the NHS for the period 2011-2022, an increase in resources used in the production of health goods and services was observed. However, the analysis of productivity for the specified period revealed negative dynamics in a number of indicators. Nevertheless, the use of productivity indicators is informative and significant in the context of the dynamics of demographic and epidemiological factors of the population, as well as the intensity of measures taken in health policy.

Keywords: Productivity, efficiency, efficiency indicators, healthcare system.

https://doi.org/10.32921/2225-9929-2024-4-59-29-36
UDC 371.7;613.955
IRSTI 14.25.05;76.33.31

Review article

Strategies for enhancing hygiene culture among students in secondary educational institutions: A literature review

Ulpan Kuandyk [1], Alua Omarova [2]

[1] *PhD student at the Karaganda Medical University, Karaganda, Kazakhstan. E-mail: KuandykU@qmu.kz*
[2] *Head of the Department of Scientific Work at the Karaganda Medical University, Karaganda, Kazakhstan. E-mail: OmarovaA@qmu.kz*

Abstract

Hygiene culture in secondary educational institutions is essential for promoting student health and preventing the spread of infectious diseases, yet many schools face challenges in maintaining high hygiene standards. In Kazakhstan, secondary schools serve as key platforms for instilling hygiene habits that can extend into adulthood. However, factors such as inadequate infrastructure, limited awareness, and varying cultural attitudes hinder the consistent adoption of good hygiene practices.

This literature review aims to explore strategies to improve hygiene culture in secondary schools by examining interventions from global studies.

A review of the literature from 2014 to 2024 was conducted using databases such as PubMed, CINAHL, Embase, ERIC, Scopus, and Web of Science to identify research on hygiene practices in schools. The review focused on the effectiveness of educational programs, the role of school staff, the adequacy of hygiene facilities, and the involvement of parents and the community.

A multi-faceted approach involving education, infrastructure, and community participation is essential for improving hygiene culture in schools. Regular reinforcement of these practices, alongside the provision of adequate facilities, can lead to lasting improvements in student health and hygiene behavior.

Keywords: Hygiene culture, secondary schools, handwashing, hygienic teaching, behavior.

Corresponding author: Ulpan Kuandyk, PhD student of Karaganda Medical University, Karaganda, Kazakhstan
Postal code: 100001
Address: Kazakhstan, Karaganda, Gogol St. 40
Phone: +7 707 774 31 74
E-mail: KuandykU@qmu.kz

J Health Dev 2024; 4 (59): 29-36
Recieved: 17-09-2024
Accepted : 25-10-2024

Introduction

Student schools have an elementary hygiene and cleanliness, especially among adolescents who are physically weakened in relation to both physical and social development schools [1]. Creating a culture of good hygiene practices in the educational institutions not only minimizes communication diseases but also promotes healthy living habits that are part and parcel someone's life routine. At the levels of secondary education where the pupils spend all day in class, regret for hygiene measures is even greater [2, 3].

In Kazakhstan, like many other countries, secondary schools serve as a microcosm of society where diverse groups of students converge [4, 5]. These institutions provide a unique opportunity to inculcate essential life skills, including hygiene practices that students can carry into adulthood. However, despite the recognized importance of hygiene, there are significant challenges in ensuring that students consistently adhere to good hygiene practices. These challenges include inadequate infrastructure, limited access to hygiene products, varying levels of awareness and education among students, and differing cultural attitudes towards hygiene [2, 5, 6]. Moreover, the global landscape has highlighted the importance of hygiene in preventing outbreaks of infectious diseases, as evidenced by the COVID-19 pandemic [7, 8, 9, 10]. This has led to an increased focus on the need for improved hygiene standards in all public spaces, including schools. Children and adolescents are secondary carriers of the virus, not only to adults but also to other children and adolescents, as even the earliest analyses from China showed [11]. In Kazakhstan, where seasonal outbreaks of infectious diseases such as influenza and gastrointestinal infections are common, improving hygiene culture in schools is not only a matter of immediate public health but also a long-term investment in the nation's future [12, 13, 14].

Purpose of the review: to explore the various strategies and approaches that have been identified in the existing body of research as effective in improving the level of hygiene culture among students in secondary educational institutions.

Search Strategy

The methods focus on existing literature on hygiene practices and culture in secondary school settings. This literature search was done within peer reviewed articles, reports and studies about hygiene practices in the contexts of educational institutions. To investigate the connections between strengthening health systems and global service-learning, an integrated evaluation of the literature was carried out. A thorough search of the PubMed, CINAHL, Embase, ERIC, Scopus, and Web of Science databases for international literature from 2014 to 2024 was carried out. Inclusion criteria consisted of meta-analyses, controlled and original studies, cross-sectional studies, and systematic reviews. Articles lacking an evidence base were excluded. A total of 63 sources met the inclusion criteria. Only peer-reviewed English-language articles were included in the search. Terms include hygienic culture, secondary schools, behavior, hygiene skills, hygienic teaching, infrastructure of schools, developing countries, hand disinfection, handwashing, and water supply.

Methods to enhance the level of hygienic culture among students in secondary educational institutions

After reviewing numerous articles on this topic, methods to enhance the level of hygienic culture among students in secondary educational institutions can be categorized into four major groups. These factors include the effectiveness of the educational program, the involvement of school and teaching staff, the adequacy of facilities, and the active participation of parents and the broader community (Figure 1).

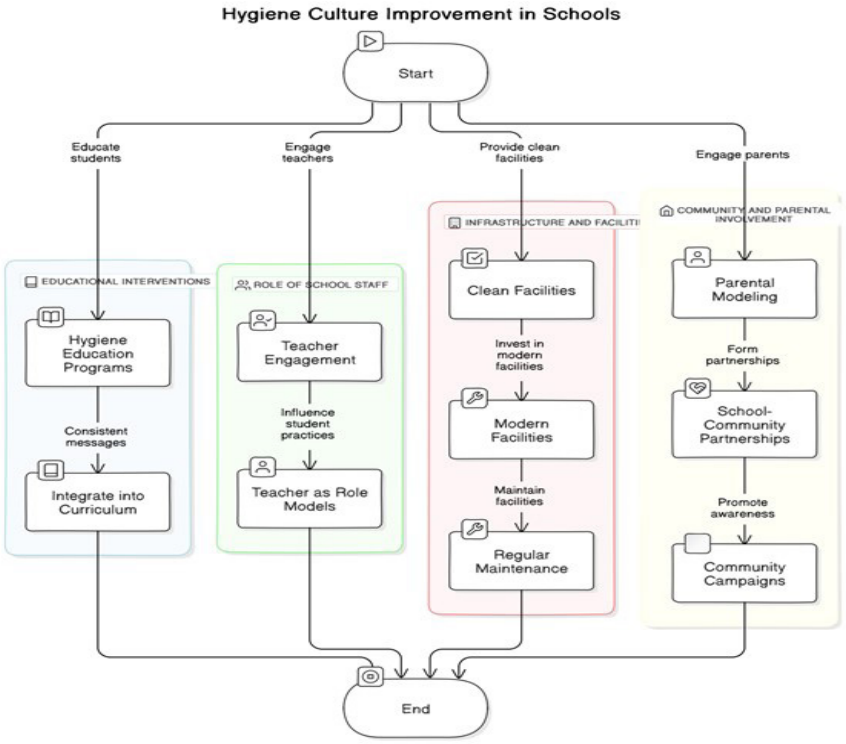


Figure 1 - The scheme for improving hygiene in secondary schools

Educational interventions

Educational initiatives are among the most effective ways to improve cleanliness culture in schools. A considerable body of research has been conducted on the effectiveness of handwashing in reducing the risk of infectious diseases among children. These studies explore how regular hand hygiene practices can serve as a preventive measure, potentially lowering the incidence of illnesses such as diarrhea and respiratory infections in pediatric populations. Infectious diseases are particularly prevalent among children in developing countries, which has led to a significant focus on research in these regions. The concentrated efforts aim to address the unique challenges faced in these settings and to identify effective strategies for improving child health outcomes [15, 16, 17, 18, 19, 20, 21]. For example, a study in New Delhi, India, found that handwashing behavior significantly reduces the odds of diarrhea and respiratory infections among low-income community children. The study, part of a larger intervention study, involved 272 mother-child dyads from six schools. The findings showed that handwashing before and after preparing food, after defecation, and after cleaning dishes significantly reduced the odds of diarrhea and respiratory infections. However, there was a low prevalence of handwashing at critical time-points and a poor perception of its benefits [22].

A systematic review of eight studies aimed to synthesize evidence on the effect of handwashing promotion interventions targeting schoolchildren on diarrhea, soil-transmitted helminthic infections, and handwashing behavior in low- and middle-income countries. The review found that none of the studies were of high quality and the majorities were at high risk of bias. The reported effect of child-targeted handwashing interventions varied between studies, and no one approach to promoting handwashing among children appeared most effective [23].

One of the key challenges highlighted in the study is the lack of prioritization of handwashing with soap interventions for older children. The research involved in-depth interviews with 25 practitioners across 11 nongovernmental organizations, identifying twelve themes related to perceived challenges: lack of prioritization, funding inconsistency, insufficient formative research, resource demand, unengaging intervention content, non-enabling physical environments, availability of skilled implementers, reaching out-of-school children, community mistrust, lack of coordination, lack of evaluation rigor, and failure to assign older children's handwashing with soap as a primary outcome [24].

Television programs can play a crucial role in promoting hygiene practices among adolescents, as demonstrated by the No Germs on Me Social Marketing Campaign, which aimed to encourage handwashing with soap in remote Australian Aboriginal communities. Using the Theory of Planned Behavior, a study evaluated the campaign's mass media component, focusing on the effectiveness of televised commercials. Surveys conducted in six communities before and after the campaign revealed that, despite low home television access, 77% of participants saw the commercials. Moreover, 75% found the commercials to be both acceptable and understandable. However, caution is needed in interpreting these findings due to limitations in the study's design [25].

Educational interventions may encompass a range of programs, including health information broadcasts via television, illustrated posters demonstrating proper handwashing techniques, and various educational books. These approaches are designed to enhance awareness and promote effective hand hygiene practices among children and their caregivers. Peer education, where peers teach each other about health, is gaining popularity in schools due to adolescents preferring to seek help for health-related concerns from their peers. A review of 2125 studies found that most interventions focused on sex education/HIV prevention, promoting healthy lifestyles, and alcohol, smoking, and substance use. Of these, 91.8% reported peer learner outcomes, while only 32.4% reported peer educator outcomes. Many studies were rated as poor quality due to unrepresentative samples and incomplete data. While some interventions show evidence for effectiveness, there is a need for more robust, high-quality evaluations using standardized health knowledge and behavior measures to make more confident conclusions [26].

Not only is teaching hygiene crucial, but consistently reinforcing and monitoring these behaviors are equally essential for long-term success. Researchers investigated how educational interventions, including motivational talks and practical lessons, influenced teenagers' oral hygiene habits. The study found a significant improvement in oral health immediately after the sessions, with the Gingival Index decreasing. However, six months later, oral health deteriorated, indicating that without ongoing reinforcement, the positive effects faded over time. This emphasizes the importance of continuous education and monitoring to maintain lasting hygiene habits among adolescents [27].

Hand hygiene habits can vary between boys and girls, which matters when showing teens how to clean their hands. The Polish Adolescents' COVID-19 Experience (PLACE-19) Study asked 2,323 high school students about what they knew and believed about hand hygiene and ways to protect themselves during the pandemic. The results showed that while most students had the right information; girls seemed to understand it better than boys. Most students said they took steps to stay safe, like staying home washing their hands, using alcohol-based hand sanitizers, keeping away from sick people, and not going to public places. Girls were better at washing their hands and said they washed their hands when needed more often than boys did. Boys often gave reasons for not washing their hands, while girls talked about side effects and social situations that made it hard to do so. The research highlights how important it is to focus on teaching people about hand washing during COVID-19. This can help people wash their hands better and stop diseases from spreading so much [28].

Role of school staff and teachers

The involvement of teachers and school staff is crucial in promoting and maintaining hygiene culture. Teachers serve as role models for students, and their attitudes and behaviors can significantly influence student practices. Studies have shown that when teachers actively engage in hygiene promotion - such as supervising handwashing or discussing the importance of cleanliness—students are more likely to adopt these practices [17, 29, 30, 31]. In the context of Kazakhstan, where teachers are highly respected, their involvement in hygiene education could have a profound impact on student behavior.

A program in Bihar, India, trained teachers to teach children about handwashing with soap. The "School of Five" program, which included interactive stories, games, songs, behavioral diaries, and public commitment, was implemented in ten primary schools. The children in the treatment reported 15.1% more handwashing with soap on key occasions (35.2%) than the control group (20.1%). The program increased handwashing rates at home and school, but the impact on key occasions in schools was much higher. Promoting handwashing through teachers in schools may be an effective way to achieve behavior change at scale [32].

If all high school programs provide some type of hygiene courses, which will make a positive impact in lives. A new study of the introduction of school-based handwashing programs in primary schools underlines both the opportunities and difficulties associated with these initiatives, particularly where resources are low. However, teachers experienced complex hardships alongside the expression of hopeful expectations and engaged with broader possibilities in promoting hygiene due to water constraints that fluctuated over time causing an unsustainable amount of labor from their side. These results indicate that these programs need the support and resources to be successful, highlighting the necessity of integrating hygiene education into all school levels as also in upper secondary schools [33].

Makarova et al. discuss negative health trends in children, adolescents, and young adults and the link between them and the younger generation's health culture. They propose fostering a healthy living culture among students, emphasizing hygienic training for future educators. This training enhances students' hygienic literacy and prepares them to effectively educate children about health and hygiene [34].

Mirko Soldo et al. conducted a study to evaluate the impact of motivational lectures and practical training on oral hygiene education for adolescents. It showed a very positive oral hygiene post-enlightenment. But six months after the education, hygiene levels also started to decrease. This decline points to the necessity for continuous and consistent educational programs in good oral hygiene [35]. Likewise, handwashing habits might need long and consistent educational efforts in school settings as well [36]. The gains from getting people to wash their hands more are immediate, but making those changes long-lasting and giving them the best value requires sustained education. Sustained and improved handwashing practices at the school level will require regular refreshers or reinforcement of education programs.

Infrastructure and facilities

The availability of clean and accessible hygiene facilities is a fundamental requirement for promoting hygiene culture in schools. Research indicates that students are more likely to practice good hygiene when they have access to well-maintained restrooms, handwashing stations, and hygiene supplies such as soap and hand sanitizers [37, 38, 39, 40]. Schools should prioritize the regular maintenance of hygiene facilities and consider implementing innovative solutions like sensor-operated handwashing stations to encourage their use.

Despite global efforts to improve water, sanitation, and hygiene (WASH) access, one-third of schools worldwide still lack adequate WASH services [41]. This lack can lead to disease spread and increased school absences, particularly among women. Insufficient financing and budgeting hinder successful WASH programs [42, 43, 44, 45].

A systematic review of research on school-based water, sanitation, and hygiene services in low- and middle-income countries reveals that dysfunctional accountability and information sharing mechanisms drive service delivery failures. Interventions focusing on increasing financial resources have negligible impact on sustainability outcomes [46]. Sustainable service delivery depends on resources, information, and accountability. The study highlights the importance of interdisciplinary collaboration and local expertise in designing WASH programming that aligns with sociocultural and institutional norms for sustainable impact [47].

A study conducted in 14 low- and middle-income countries (LMICs) found that 51% of schools had basic water services, 28% had basic sanitation services, 12% had basic handwashing facilities, and 26% had menstrual hygiene management materials. Factors such as lack of community support, parent-teacher associations supporting hygiene, and external support were associated with better access. Schools with basic sanitation services, health clubs, management materials curriculum, designated focal person, or school funds for WASH were more likely to have MHM materials. The study concluded that improved institutional management, external support, accountability mechanisms, and enhanced training and hygiene curriculum will support sustained WASH service delivery in LMICs [48].

The presence of adequate hygiene facilities has been shown to directly correlate with better hygiene practices among students. A study by Sarah Bick et al. revealed that schools equipped with well-maintained hygiene facilities reported lower rates of absenteeism due to illness. The study highlighted that the mere availability of facilities is not sufficient; their maintenance and cleanliness are equally crucial in promoting consistent use by students. Schools with clean restrooms and readily accessible handwashing stations saw higher instances of students washing their hands regularly, thereby reducing the transmission of germs and illnesses [49].

Furthermore, a report by UNICEF (2019) emphasized that access to clean water, sanitation, and hygiene facilities in schools is critical for reducing the incidence of waterborne diseases among students. The report noted that schools lacking these basic facilities often face higher rates of student absenteeism, particularly among girls during menstruation. This highlights the broader implications of inadequate hygiene facilities on student health and educational outcomes [50].

Infrastructure of a school is an indication that the institution takes care of its students' health and safety seriously. If a school is able to take care about hygiene facilities, that already create an attitude in the mind of students that thing how this much important for our daily life. This in turn, also shapes the behavior of students and makes them more likely to adopt good hygiene habits both inside and outside school. A study by McMichael and et al. highlighted that students who had access to clean and well-maintained hygiene facilities at school were more likely to practice good hygiene habits at home, demonstrating the long-lasting impact of school infrastructure on student behavior [47].

Equally, the design and access of hygiene facilities can help schools to be inclusive. Handbasin access is also critical for some students with disabilities to participate in just being able use the toilet or wash hands independently. It ensures all children are given food regardless of their social standing in the school promoting health but also respect for every community members [51, 52, 53].

Community and parental involvement

The involvement of parents and the community plays a significant role in reinforcing hygiene practices taught at school. When parents model good hygiene practices at home and support school initiatives, students are more likely to carry these behaviors into their daily routines. It can include engaging parents through workshops, informational sessions, and school-community partnerships could strengthen the impact of school-based hygiene education [54].

Despite the training lessons and efforts by teachers at school, without reminders and support from parents, it is unlikely that children will develop lasting habits. For example, Le Thi Thanh Xuan et al. conducted a study on handwashing with soap (HWWS) among multi-ethnic primary schoolchildren in rural communes. The study, which involved collaboration with schoolteachers and collection of qualitative data, revealed that children were enthusiastic about the HWWS sessions, regardless of ethnicity or gender. However, challenges included a limited focus on hygiene in the school curriculum, insufficient time allocated for practical teaching, and a lack of regular reminders at home. The study concluded that while engaging teachers and using active teaching methods can effectively promote HWWS, significant investments in water and hygiene infrastructure are not necessary. Nonetheless, continuous parental support and reminders are crucial for reinforcing these habits beyond the school setting [55].

Ajay Kumar Rajbhandari et al. conducted a cross-sectional study from July to September 2023 to evaluate personal hygiene knowledge and practices among secondary school children. The study, involving 115 participants, found that most students practiced good hygiene, including daily bathing and tooth brushing, and understood the importance of hygiene for health. However, there were notable gaps in consistent handwashing before meals and after defecation. The study emphasizes the need for increased awareness and education on personal hygiene through coordinated efforts by parents, teachers, and media, along with ongoing monitoring to enhance hygiene practices among schoolchildren [56].

Education is the cornerstone of behavior change, and this principle holds true for personal hygiene practices. Effective parent education can significantly enhance the impact of school-based hygiene programs. Schools can host seminars and workshops specifically designed for parents, aiming to increase their understanding of the importance of hygiene and how they can support these practices at home. These sessions should be interactive, allowing parents to engage with the material actively and ask questions [57, 58, 59].

Additionally, providing parents with educational materials such as pamphlets, brochures, and digital resources can be highly beneficial. These materials should offer clear and actionable information on personal hygiene practices, making it easier for parents to integrate these practices into daily routines. For instance, simple guidelines on effective handwashing, dental care, and personal cleanliness can empower parents to support their children in maintaining good hygiene. Maintaining regular communication with parents is another crucial strategy for promoting hygiene practices. Schools can use various methods, including newsletters, emails, and school apps, to keep parents informed about ongoing hygiene initiatives and their importance. Regular updates ensure that parents are aware of the programs in place and their role in reinforcing these practices at home [60].

Sharing success stories and positive outcomes from hygiene programs can motivate parents and demonstrate the tangible benefits of their involvement. When parents see the positive impact of hygiene education on their children's health and well-being, they are more likely to engage actively in supporting these practices [55]. Creating feedback channels where parents can voice their concerns and share their experiences is also essential. By providing a platform for parents to communicate with school staff, schools can address any issues or challenges that arise and adjust their programs accordingly. This two-way communication fosters a collaborative approach to hygiene education, ensuring that both schools and parents work together to achieve the best outcomes for students [61].

Despite the benefits, implementing these strategies may face several challenges. One major issue is ensuring consistent parental engagement, especially in communities where parents may have limited time due to work or other commitments. To address this, schools can offer flexible meeting times and provide online resources that parents can access at their convenience [56, 62, 63].

Conclusion

Effective interventions are crucial for establishing a culture of hygiene among secondary school students, which can help in promoting student wellness and preventing diseases. This review emphasizes the need for a comprehensive approach that includes educational programs, active involvement of school staff, adequate infrastructure, and parental engagement. Teaching proper hygiene practices, like handwashing, is essential, but must be supported by accessible facilities and consistent reinforcement from teachers and parents. Schools, families and communities working together is essential to sustaining these efforts – having children develop hygiene habits that they will take into adulthood as well delivers better public health outcomes.

Conflict of interest. The authors declare the absence of obvious and potential conflicts of interest related to the content of this article.

Funding. No external sources.

Contribution of the authors. All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by U.K. The first draft of the manuscript was written by U.K.Conceptualization: A.O; Writing - original draft preparation: A.O. All authors agreed to the final version of the manuscript and signed a copyright release form.

References

1. Mangal N., Kumar L.D., Varghese K.A., Chauhan M. A cross sectional study on personal hygiene among rural school students in southern Rajasthan. International Journal Of Community Medicine And Public Health. 2019; 6(6): 2646. [Crossref]

2. Aschale A., Adane M., Getachew M., Faris K. et al. Water, sanitation, and hygiene conditions and prevalence of intestinal parasitosis among primary school children in Dessie City, Ethiopia. PLoS One. 2021; 16(2): e0245463. [Crossref]

3. Cha Y.E., Fu Y.Z., Yao W. Knowledge, Practice of Personal Hygiene, School Sanitation, and Risk Factors of Contracting Diarrhea among Rural Students from Five Western Provinces in China. Int J Environ Res Public Health. 2021; 18(18): 9505. [Crossref]

4. Kirpicheva U., Shapiyeva Z. 1389. Parasitic Diseases Surveillance in Kazakhstan: Incidence Trends and Future Projections. Open Forum Infect Dis. 2023; 10(2): 1226. [Crossref]

5. Toleubekov B., Bolatova Z., Stafström M. Assessing Access to WASH in Urban Schools during COVID-19 in Kazakhstan: Case Study of Central Kazakhstan. Int J Environ Res Public Health. 2022; 19(11): 6438. [Crossref]

6. Berhanu A., Mengistu D.A., Temesgen L.M., Mulat S. et al. Hand washing practice among public primary school children and associated factors in Harar town, eastern Ethiopia: An institution-based cross-sectional study. Front Public Health. 2022; 10: 975507. [Crossref]

7. Pieters M.M., Fahsen N., Quezada R., Pratt C. et al. Assessing hand hygiene knowledge, attitudes, and behaviors among Guatemalan primary school students in the context of the COVID-19 pandemic. BMC Public Health. 2023; 23(1): 2252. [Crossref]

8. Poague K.I., Blanford J.I., Anthonj C. Water, Sanitation and Hygiene in Schools in Low- and Middle-Income Countries: A Systematic Review and Implications for the COVID-19 Pandemic. International Journal of Environmental Research and Public Health. 2022; 19(5): 3124. [Crossref]

9. Wu A.G., Lipner S.R. A potential hidden reservoir: The role of nail hygiene in preventing transmission of COVID-19. J Am Acad Dermatol. 2020; 83(3): 245-246. [Crossref]

10. Zakout Y.M., Khatoon F., Bealy M.A., Khalil N.A. et al. Role of the Coronavirus Disease 2019 (COVID-19) pandemic in the upgrading of personal hygiene. A cross-sectional study in Saudi Arabia. Saudi medical journal. 2020; 41(11): 1263. [Crossref]

11. Walger P., Heininger U., Knuf M., Exner M. et al. Children and adolescents in the CoVid-19 pandemic: Schools and daycare centers are to be opened again without restrictions. The protection of teachers, educators, carers and parents and the general hygiene rules do not conflict with this. GMS Hyg Infect Control. 2020; 15. [Crossref]

12. Adambekov S., Kaiyrlykyzy A., Igissinov N., Linkov F. Health challenges in Kazakhstan and Central Asia. J Epidemiol Community Health. 2016; 70(1): 104-108. [Google Scholar]

13. Freeman M.C., Stocks M.E., Cumming O., Jeandron A. et al. Hygiene and health: systematic review of handwashing practices worldwide and update of health effects. Trop Med Int Health. 2014; 19(8): 906-916. [Crossref]

14. Sabitova V.,Tokanova S., Kyrykbayeva S. Improving the epidemiological surveillance of especially dangerous infectious diseases in independent Kazakhstan: a literature review. Science & Healthcare. 2021; 23(2): 31-50. [Crossref]

15. Brouwer A.F., Eisenberg M.C., Bakker K.M., Boerger S.N. et al. Leveraging infectious disease models to interpret randomized controlled trials: Controlling enteric pathogen transmission through water, sanitation, and hygiene interventions. PLoS Comput Biol. 2022; 18(12): e1010748. [Crossref]

16. Crosby S., Younie S., Ujenia H.V., Laird K. The longitudinal effect of disseminating handwashing public health education to children in India via co-created, culturally relevant resources. Access Microbiol. 2024; 6(1): 000677.v3. [Crossref]

17. Klar K., Knaack D., Kampmeier S., Hein A.K. et al. Knowledge about Hand Hygiene and Related Infectious Disease Awareness among Primary School Children in Germany. Children. 2022; 9(2): 190. [Crossref]

18. Sackou Kouakou J.G., Desquith A.A., Barro-Kiki P.C.M., Kouame J. et al. Personal hygiene in schools: retrospective survey in the northern part of Côte d'Ivoire. J Prev Med Hyg. 2021; 62(1): E75-E81. [Crossref]

19. McGuinness S.L., Barker S.F., O'Toole J., Cheng A.C. et al. Effect of hygiene interventions on acute respiratory infections in childcare, school and domestic settings in low- and middle-income countries: a systematic review. Trop Med Int Health. 2018; 23(8): 816-833. [Crossref]

20. Ntshangase S.N., Ghuman S., Haffejee F. Diarrhoeal prevalence and handwashing practices of children attending early childhood development centres in KwaZulu-Natal, South Africa. Health SA. 2022; 27: 1-8. [Crossref]

21. Willmott M., Nicholson A., Busse H., MacArthur G.J. et al. Effectiveness of hand hygiene interventions in reducing illness absence among children in educational settings: a systematic review and meta-analysis. Arch Dis Child. 2016; 101(1): 42-50. [Google Scholar]

22. Khan K.M., Chakraborty R., Brown S., Sultana R. et al. Association between Handwashing Behavior and Infectious Diseases among Low-Income Community Children in Urban New Delhi, India: A Cross-Sectional Study. Int J Environ Res Public Health. 2021; 18(23): 12535. [Crossref]

23. Watson J.A., Ensink J.H.J., Ramos M., Benelli P. et al. Does targeting children with hygiene promotion messages work? The effect of handwashing promotion targeted at children, on diarrhoea, soil-transmitted helminth infections and behaviour change, in low- and middle-income countries. Trop Med Int Health. 2017; 22(5): 526-538. [Crossref]

24. Watson J., Cumming O., Dreibelbis R. Nongovernmental Organization Practitioners' Perspectives on the Challenges and Solutions to Changing Handwashing Behavior in Older Children: A Qualitative Study. Glob Health Sci Pract. 2023; 11(1): e2200231. [Crossref]

25. McDonald E., Cunningham T., Slavin N. Evaluating a handwashing with soap program in Australian remote Aboriginal communities: a pre and post intervention study design. BMC Public Health. 2015; 15: 1-12. [Crossref]

26. Dodd S., Widnall E., Russell A.E., Curtin E.L. et al. School-based peer education interventions to improve health: a global systematic review of effectiveness. BMC Public Health. 2022; 22(1): 2247. [Crossref]

27. Graichen J., Stingl C., Pakarinen A., Rosio R. et al. Improving hand hygiene of young children with a digital intervention: a cluster-randomised controlled field trial. Sci Rep. 2024; 14(1): 6157. [Crossref]

28. Guzek D., Skolmowska D., Głąbska D. Analysis of Gender-Dependent Personal Protective Behaviors in a National Sample: Polish Adolescents' COVID-19 Experience (PLACE-19) Study. Int J Environ Res Public Health. 2020; 17(16): 5770. [Crossref]

29. Beaudoin A.J., Gagnon M., Roy M., Clapperton I. et al. Collaboration between Public Health and Schools: An Example of an Integrated Community Social Care Model. Int J Integr Care. 2023; 23(3): 11. [Crossref]

30. Ashraf H., Iftikhar S., Baig-Ansari N. Impact of hand hygiene intervention on hand washing ability of school-aged children. J Family Med Prim Care. 2021; 10(2): 642-647. [Crossref]

31. Taware S., Gawai P., Chatterjee A., Thakur H. Outcome of School-Based Intervention Program in Promoting Personal Hygiene in Primary School Children of Mumbai, India. Int Q Community Health Educ. 2018; 39(1): 31-38. [Google Scholar]

32. Tidwell J.B., Gopalakrishnan A., Unni A., Sheth E. et al. Impact of a teacher-led school handwashing program on children's handwashing with soap at school and home in Bihar, India. PLoS One. 2020; 15(2): e0229655. [Crossref]

33. Graves J.M., Finsness E.D., Quick R. Nyando Integrated Child Health And Education Project Niche Study Team, Harris J.R., Daniell W.E. Teacher perspectives on implementing and sustaining a handwashing promotion intervention in Western Kenyan primary schools. Int Q Community Health Educ. 2013; 34(2): 159-170. [Crossref]

34. Makarova L.P., Buynov L.G., Plakhov N.N. Hygienic Foundations For The Formation Of Culture Of Healthy Lifestyle Of Schoolchildren. Hygiene and Sanitation. 2017; 96(5): 463-466. [Google Scholar]

35. Soldo M., Matijević J., Malčić Ivanišević A., Čuković-Bagić I. et al. Impact of oral hygiene instructions on plaque index in adolescents. Cent Eur J Public Health. 2020; 28(2): 103-107. [Crossref]

36. Caplan N., Sanka B.C., Mulat A., Brener D.T. et al. Motivating school communities towards behavior change and local ownership: a gamification intervention to prevent trachoma at primary schools in southern Ethiopia. Int Health. 2023; 15(2): 38-43. [Crossref]

37. Morgan C., Bowling M., Bartram J., Kayser G.L. Water, sanitation, and hygiene in schools: Status and implications of low coverage in Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia. Int J Hyg Environ Health. 2017; 220(6): 950-959. [Crossref]

38. Morgan C.E., Bowling J.M., Bartram J., Kayser G.L. Attributes of drinking water, sanitation, and hygiene associated with microbiological water quality of stored drinking water in rural schools in Mozambique and Uganda. Int J Hyg Environ Health. 2021; 236: 113804. [Crossref]

39. Sugita E.W. Water, Sanitation and Hygiene (WASH) in Japanese elementary schools: Current conditions and practices. Pediatr Int. 2022; 64(1): e15062. [Crossref]

40. Watson J., Amon-Tanoh M.A., Deola C., Haji M.A. et al. Effect of a novel hygiene intervention on older children's handwashing in a humanitarian setting in Kahda district, Somalia: A cluster-randomised controlled equivalence trial. International Journal of Hygiene and Environmental Health. 2023; 250: 114163. [Crossref]

41. Omarova A., Tussupova K., Hjorth P., Kalishev M. et al. Water Supply Challenges in Rural Areas: A Case Study from Central Kazakhstan. International Journal of Environmental Research and Public Health. 2019; 16(5): 688. [Crossref]

42. Chettry L.K., Bohara P., Bohara R.C., Jajal R. H. et al. Budgeting and Advocacy to Improve Water, Sanitation, and Hygiene in Health Care Facilities: A Case Study in Nepal. Glob Health Sci Pract. 2024; 12(3): e2300491. [Crossref]

43. Lin A., Ercumen A., Benjamin-Chung J., Arnold B.F. et al. Effects of Water, Sanitation, Handwashing, and Nutritional Interventions on Child Enteric Protozoan Infections in Rural Bangladesh: A Cluster-Randomized Controlled Trial. Clin Infect Dis. 2018; 67(10): 1515-1522. [Crossref]

44. McGinnis S.M., McKeon T., Desai R., Ejelonu A. et al. A Systematic Review: Costing and Financing of Water, Sanitation, and Hygiene (WASH) in Schools. Int J Environ Res Public Health. 2017; 14(4): 442. [Crossref]

45. Susanti M.E., Marlianto N., Kurniawan Y. The effect of health counseling on handwashing technique in early childhood settings. Malahayati International Journal of Nursing and Health Science. 2024; 7(6): 729-735. [Crossref]

46. Omarova A.O., Tussupova K.M., Berndtsson R., Kalishev M.G. Medical and social significance of water supply, sanitation and hygiene in human activity. Vestnik KazNMU. 2017; 3: 193-197. [Google Scholar]

47. Pu C.J., Patel P., Hornsby G., Darmstadt G.L. et al. Necessary conditions for sustainable water and sanitation service delivery in schools: A systematic review. PLoS One. 2022; 17(7): e0270847. [Google Scholar]

48. Cronk R., Guo A., Fleming L., Bartram J. Factors associated with water quality, sanitation, and hygiene in rural schools in 14 low- and middle-income countries. Sci Total Environ. 2021; 761: 144226. [Crossref]

49. Bick S., Ezezew A., Opondo C., Leurent B. et al. Impact of a school-based water and hygiene intervention on child health and school attendance in Addis Ababa, Ethiopia: a cluster-randomised controlled trial. BMC Med. 2024; 22(1): 348. [Crossref]

50. Progress on drinking water, sanitation and hygiene in schools | UNICEF. Website. [Cited 01 Sep 2024]. [Google Scholar]

51. Mbakaya B.C., Lee P.H., Lee R.L. Hand Hygiene Intervention Strategies to Reduce Diarrhoea and Respiratory Infections among Schoolchildren in Developing Countries: A Systematic Review. Int J Environ Res Public Health. 2017; 14(4): 371. [Crossref]

52. Nadiv M., Nishat M.T.A., Ormi N.J., Chowdhury S.A. Hygiene management of adolescent female students with disabilities in the special schools of Bangladesh. SN Social Sciences. 2024; 4(8): 155 [Crossref]

53. Olatunji R.W., Taiwo N.T. Availability and adequacy of water, sanitation and hygiene (wash) facilities in secondary schools. Journal of Environmental Science and Sustainable Development. 2021; 4(2): 177-194. [Google Scholar]

54. Jatrana S., Hasan M.M., Mamun A.A., Fatima Y. Global Variation in Hand Hygiene Practices Among Adolescents: The Role of Family and School-Level Factors. Int J Environ Res Public Health. 2021; 18(9): 4984. [Crossref]

55. Thanh Xuan L.T., Rheinländer T., Ngoc Hoat L., Dalsgaard A. et al. Teaching handwashing with soap for schoolchildren in a multi-ethnic population in northern rural Vietnam. Global Health Action. 2013; 6(1): 20288. [Crossref]

56. Rajbhandari A. K., Dhaubanjar R., GC K.B., Dahal M. Knowledge and practice of personal hygiene among secondary school students of grade nine and ten. Journal of Patan Academy of Health Sciences. 2018; 5(2): 107-113. [Crossref]

57. Goodshoot Parent Engagement. Strategies For Involving Parents In School Health. Website. [Google Scholar]

58. Khan M.F., Banerjee S., Bandyopadhyay K., Kalaiselvi S. et al. Role of dietary habits and personal hygiene on nutritional status of school-going adolescents: A cross-sectional study in selected schools located in slum areas of Nagpur City, Maharashtra. Ann Afr Med. 2022; 21(3): 185-192. [Crossref]

59. Njee R.M., Imeda C.P., Ali S.M., Mushi A.K. et al. Menstrual health and hygiene knowledge among post menarche adolescent school girls in urban and rural Tanzania. PLoS One. 2024; 19(3): e0284072. [Google Scholar]

60. Lal B.S., Kavitha G. Assessment of Personal Hygiene Knowledge and Practices: An Empirical Study of Schooling

Children in Warangal. International Journal of Science and Research (IJSR). 2016; 5(8): 1521-1524. [Google Scholar]

61. Bishoge O., Omary M., Liheluka E., Mshana J.M. et al. Hand hygiene practices among primary and secondary school students in sub-Saharan Africa: a systematic review. Journal of Water, Sanitation and Hygiene for Development. 2023; 13(12) 1018-1035. [Google Scholar]

62. Chumo I., Kabaria C., Phillips-Howard P.A., Simiyu S. et al. Mapping social accountability actors and networks and their roles in water, sanitation and hygiene (WASH) in childcare centres within Nairobi's informal settlements: A governance diaries approach. PLoS One. 2022; 17(11): e0275491. [Crossref]

63. Chumo I., Kabaria C., Shankland A., Igonya E. et al. Complementarity of formal and informal actors and their networks in support of vulnerable populations in informal settlements: Governance diaries approach. Front Public Health. 2023; 10: 1043602. [Crossref]

Жалпы орта білім беру мекемелері оқушыларының гигиеналық мәдениетін арттыру стратегиялары: Әдебиетке шолу

Қуандық Ұ.Е. [1], Омарова А.О. [2]

[1] PhD докторант, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: KuandykU@qmu.kz

[2] Ғылыми жұмыс бөлімінің басшысы, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: OmarovaA@qmu.kz

Түйіндеме

Жалпы орта білім беру мекемелеріндегі гигиеналық мәдениет оқушылардың денсаулығын нығайту және жұқпалы аурулардың таралуын болдырмау үшін өте маңызды. Дегенмен көптеген мектептер жоғары гигиеналық стандарттарды сақтауда қиындықтарға тап болады. Қазақстанда жалпы білім беретін мектептер ересектерге дейін созылуы мүмкін гигиеналық әдеттерді тәрбиелеудің негізгі ортасы болып табылады. Жеткіліксіз инфрақұрылым, шектеулі хабардарлық және әртүрлі мәдени көзқарастар сияқты факторлар жақсы гигиеналық тәжірибелерді дәйекті түрде қабылдауға кедергі келтіреді.

Бұл әдебиеттік шолу жаһандық зерттеулердің интервенцияларын зерделеу арқылы жалпы орта білім беру мекемелерінде гигиеналық мәдениетті жақсарту стратегияларын зерттеуге бағытталған.

Мектептердегі гигиеналық тәжірибелер бойынша зерттеулерді анықтау үшін PubMed, CINAHL, Embase, ERIC, Scopus және Web of Science сияқты дерекқорларды пайдалана отырып, 2014-2024 жылдар аралығындағы әдебиеттерге жүйелі шолу жүргізілді. Шолуда білім беру бағдарламаларының тиімділігі, мектеп ұжымының рөлі, санитарлық-гигиеналық базаның талапқа сай болуы, ата-аналар мен қоғамды тарту мәселелеріне назар аударылды.

Мектептердегі гигиеналық мәдениетті арттыру үшін білім беруді, инфрақұрылымды және қоғамдастықтың қатысуын қамтитын көп қырлы тәсіл өте маңызды. Бұл тәжірибелерді жүйелі түрде күшейту, сәйкес құралдармен қамтамасыз етумен қатар, студенттердің денсаулығы мен гигиеналық мінез-құлқының тұрақты жақсаруына әкелуі мүмкін.

Түйін сөздер: гигиеналық мәдениет, жалпы орта білім беру мекемелер, қол жуу, гигиеналық оқыту, мінез-құлық.

Стратегии повышения гигиенической культуры учащихся средних общеобразовательных учреждений: Обзор литературы

Куандык У.Е. [1], Омарова А.О. [2]

[1] PhD докторант, Карагандинский медицинский университет, Караганда, Казахстан. E-mail: KuandykU@qmu.kz

[2] Начальник Отдела научной работы, Карагандинский медицинский университет, Караганда, Казахстан. E-mail: OmarovaA@qmu.kz

Резюме

Гигиеническая культура в общеобразовательных учреждениях необходима для укрепления здоровья учащихся и предотвращения распространения инфекционных заболеваний, однако многие школы сталкиваются с проблемами в поддержании высоких гигиенических стандартов. В Казахстане средние школы служат ключевой платформой для привития гигиенических привычек, которые могут сохраниться во взрослой жизни. Однако такие факторы, как неадекватная инфраструктура, ограниченная осведомленность и различные культурные установки, препятствуют последовательному внедрению надлежащей гигиенической практики.

Цель данного обзора литературы - изучить стратегии повышения уровня гигиенической культуры средних общеобразовательных учреждений путем анализа мероприятий, проведенных в рамках глобальных исследований.

Был проведен систематический обзор литературы за период с 2014 по 2024 год с использованием таких баз данных, как PubMed, CINAHL, Embase, ERIC, Scopus и Web of Science, с целью выявления исследований, посвященных гигиеническим практикам в школах. Основное внимание в обзоре уделялось эффективности образовательных программ, роли школьного персонала, адекватности санитарно-гигиенических условий, а также вовлечению родителей и общественности.

Для повышения уровня гигиенической культуры в школах необходим многогранный подход, включающий образование, инфраструктуру и участие общественности. Регулярное укрепление этих практик, наряду с обеспечением надлежащих условий, может привести к долгосрочному улучшению здоровья и гигиенического поведения учащихся.

Ключевые слова: гигиеническая культура, общеобразовательные школы, мытье рук, гигиеническое обучение, поведение.

https://doi.org/10.32921/2225-9929-2024-4-59-37-42
UDC 376.4-053.2; 616.899
IRSTI 15.31.31;76.29.51

Original article

Trends in Early Childhood Mental and Behavioral Disorders and Increasing Autism Diagnoses in Kazakhstan: A Decade of Change

Karina Nukeshtayeva [1], Bauyrzhan Omarkulov [2], Marina Lyubchenko [3], Nailya DeLellis [4]

[1] Assistant-professor, School of Public Health, Karaganda Medical University, Karaganda, Kazakhstan. E-mail: nukeshtaeva@qmu.kz
[2] Professor, Department of Family Medicine, Karaganda Medical University, Karaganda, Kazakhstan. E-mail: omarkulov@qmu.kz
[3] Professor, Department of Neurology, Neurosurgery, Psychiatry and Rehabilitation, Karaganda Medical University, Karaganda, Kazakhstan. E-mail: lyubchenko@qmu.kz
[4] Professor, Department of Health science, The Herbert H. & Grace A. Dow College of Health professions, Central Michigan University, Mount Pleasant, USA. E-mail: delel1no@cmich.edu

Abstract

The aim: This study investigates trends in the incidence of mental and behavioral disorders, including autism spectrum disorder, among children aged 0-5 years in Kazakhstan from 2012 to 2022. The research aims to understand the broader implications for public health policy and clinical practice within this Central Asian context.

Methods. Data were extracted from the Statistical Yearbooks of the Ministry of Health of the Republic of Kazakhstan, covering initial diagnoses of mental and behavioral disorders, symptoms, signs, and developmental deviations in children aged 0-5 years. The analysis included trends over a decade, focusing on both national and regional levels, particularly in Central Kazakhstan.

Results. The incidence of mental and behavioral disorders in children aged 0-5 years showed a consistent decline, from 1.2 per 1000 in 2012 to 0.3 per 1000 in 2022. Diagnoses related to symptoms and abnormalities fluctuated, with a notable spike in 2019 (15.6 per 1000), followed by a decline to 4.9 per 1000 by 2022. Conversely, ASD diagnoses increased significantly, with a fivefold rise in "Childhood Autism" and a fourfold rise in "Atypical Autism" from 2016 to 2022.

Conclusion. The findings reveal a decline in early childhood mental and behavioral disorder diagnoses, contrasted by a significant rise in autism diagnoses. These trends highlight the need for targeted public health strategies, enhanced early intervention programs, and greater awareness and diagnostic capacity for autism in Kazakhstan. Regional disparities, particularly in Central Kazakhstan, underscore the importance of equitable healthcare access across the country.

Keywords: Autism Spectrum Disorder, Mental Health, Early Childhood, Kazakhstan, Public Health, Epidemiology.

Corresponding author: Karina Nukeshtayeva, assistant-professor, Karaganda Medical University, Karaganda, Kazakhstan.
Postal code: 100009
Address: Kazakhstan, Karaganda, Gogol Str , 40
Phone: + 7 7212 50-06-31
E-mail: nukeshtaeva@qmu.kz

J Health Dev 2024; 4 (59): 37-42
Recieved: 17-10-2024
Accepted : 27-11-2024

Introduction

The rising global incidence of autism spectrum disorder (ASD) and other mental health disorders in children has garnered significant attention in recent years. While much of the existing research has focused on Western countries, there is an increasing need to understand these trends in diverse cultural and socio-economic contexts [1,2]. Kazakhstan, a nation at the crossroads of Eastern Europe and Central Asia, presents a unique case for examining the incidence and management of ASD and mental health disorders in children. This paper seeks to explore the current trends in the incidence of these conditions in Kazakhstan, shedding light on the broader implications for public health policy and clinical practice.

Kazakhstan, the largest landlocked country in the world, has undergone significant socio-economic changes since gaining independence from the Soviet Union in 1991. These changes have influenced various aspects of public health, including the mental health of its younger population. The transition from a centrally planned economy to a market economy has brought both opportunities and challenges, impacting the healthcare system's capacity to address emerging health issues, including mental health disorders and developmental conditions such as autism [3, 4].

Autism spectrum disorder is characterized by persistent deficits in social communication and interaction, along with restricted, repetitive patterns of behavior, interests, or activities [2]. The global prevalence of ASD has been increasing, prompting extensive research into potential genetic, environmental, and socio-cultural factors [5, 6]. However, data on the incidence and prevalence of ASD in Central Asian countries, including Kazakhstan, remain sparse. This lack of comprehensive data impedes the development of targeted interventions and policies that address the unique needs of children with ASD in these regions [3].

Similarly, the prevalence of other mental health disorders, such as anxiety, depression, and attention-deficit/hyperactivity disorder (ADHD), has also been rising globally [7–9]. These conditions can significantly impair a child's academic performance, social interactions, and overall quality of life [10–12]. In Kazakhstan, cultural stigma surrounding mental health issues further complicates the identification, diagnosis, and treatment of these disorders [13, 14]. Understanding the trends in the incidence of these conditions is crucial for developing effective public health strategies and reducing the long-term burden on individuals, families, and society.

The healthcare infrastructure in Kazakhstan has evolved considerably over the past few decades, with improvements in access to medical services and advancements in diagnostic technologies. However, disparities in healthcare access between urban and rural areas, along with varying levels of professional training and awareness among healthcare providers, continue to pose significant challenges [15]. Furthermore, the integration of mental health services into primary healthcare settings remains limited, affecting early detection and intervention efforts [16].

This research article aims to fill the existing knowledge gap by providing a comprehensive analysis of the trends in the incidence of autism and other mental health disorders among children in Kazakhstan. Using data from national health databases, clinical studies, and educational records, we will examine the prevalence rates, demographic factors, and potential risk factors associated with these conditions. Additionally, we will explore the existing healthcare policies and practices related to the diagnosis, treatment, and support of children with ASD and mental health disorders in Kazakhstan.

By contextualizing the findings within the broader global trends and considering the unique socio-cultural landscape of Kazakhstan, this study hopes to contribute valuable insights to the field of child mental health.

Materials and methods

Data on the initial diagnosis of mental and behavioral disorders, as well as symptoms, signs, and deviations from typical behavior among children aged 0-5 years was derived from Statistical Yearbooks of Ministry of Health of Republic of Kazakhstan from 2012 to 2022. These compilations offer comprehensive statistical data regarding the operations of healthcare institutions and key health indicators pertaining to the population of the Republic of Kazakhstan. The healthcare regulatory body supplies healthcare entities with standardized forms for administrative data collection, organized by region, and compiles summary forms for the Republic of Kazakhstan. These are then transmitted to the national statistical authority. Utilizing this data, the healthcare regulatory body calculates public health metrics and evaluates healthcare organizations' performance. It conducts statistical analyses at both regional and national levels.

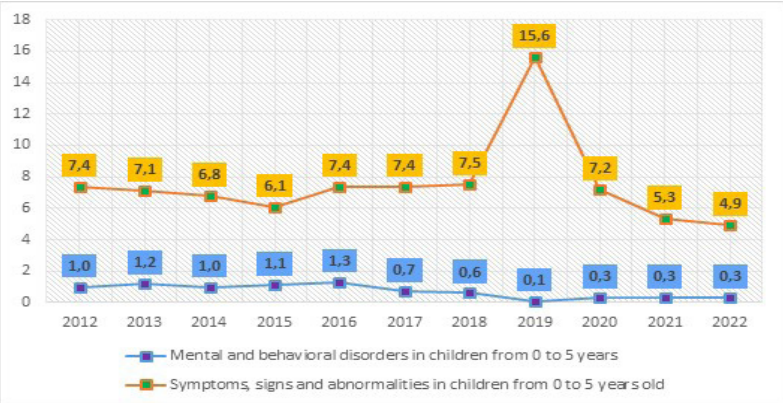


Figure 1 - Kazakhstan trends in the initial diagnosis of mental and behavioral disorders, symptoms, signs and deviations from the typical development in children from 0 to 5 years old per 1000 children from 0 to 5 years old

Results

According to Figure 1 mental and behavioral disorders diagnosis in children from 0 to 5 years demonstrated a consistent decline in the number of diagnoses over the study period. In 2012, approximately 1.2 children out of 1000 received initial diagnoses related to mental and behavioral disorders.

By 2022, this number decreased significantly to around 0.3 diagnoses per 1000 children. In 2012, about 7.4 children per 1000 received diagnoses related to symptoms, signs, or abnormalities. Over the years, this category fluctuated but generally followed a downward trajectory. A remarkable spike occurred in 2019, with diagnoses reaching 15.6 per 1000 children. By 2022, the number of diagnoses in this category declined back to approximately 4.9 per 1000 children.

Figure 2 indicates a significant increase in symptoms, signs, and abnormalities in children aged 0 to 5 years from 2017 to 2019 in Central Kazakhstan region, followed by a sharp decrease in 2020. Overall, the prevalence of mental and behavioral disorders in children aged 0 to 5 years remained relatively stable throughout the decade, ranging from 2.7 in 2012 to 1.8 in 2022, being higher than the national average. The incidence of mental and behavioral disorders among children aged 0 to 5 years in Central Kazakhstan differs notably from the overall trend observed in Kazakhstan.

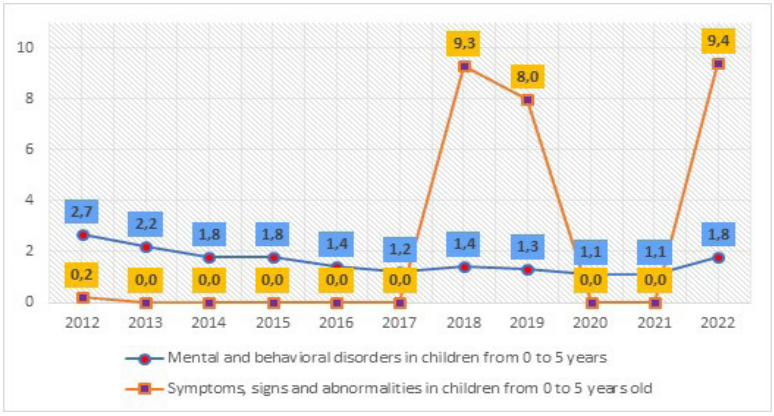


Figure 2 - Central Kazakhstan trends in initial diagnosis of mental and behavioral disorders, symptoms, signs and deviations from the typical development in children from 0 to 5 years old per 1000 children from 0 to 5 years old

The trends in the incidence of "Childhood Autism" and "Atypical Autism" in Kazakhstan over a six-year period are depicted in Figure 3. The data show a significant increase in diagnoses: the number of newly diagnosed cases of "Childhood Autism" per 100,000 children aged 0-17 years has increased fivefold, while the number of newly diagnosed cases of "Atypical Autism" per 100,000 children in the same age group has increased fourfold.

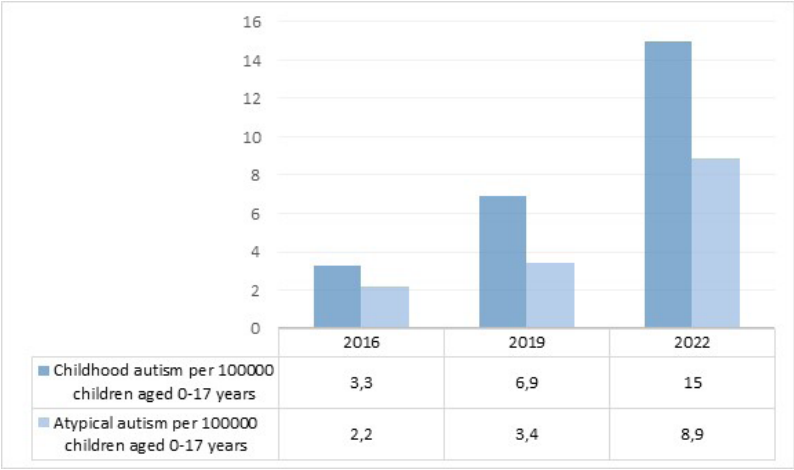


Figure 3 - Incidence of Childhood Autism and Atypical Autism per 100000 children aged 0-17 years from 2016 to 2022

Discussion

The trends observed in our data reflect significant changes in the diagnosis rates of mental, behavioral, and autism spectrum disorders in Kazakhstan, influenced by various factors such as advancements in healthcare, shifts in societal awareness, changes in diagnostic criteria, and regional differences.

The data shows a consistent decline in the diagnosis of mental and behavioral disorders among children aged 0 to 5 years over the decade. In 2012, approximately 1.2 per 1000 children received initial diagnoses, a figure that declined to about 0.3 per 1000 by 2022. This significant reduction could be attributed to several factors. Advancements in early detection and intervention programs over the years may have led to earlier diagnosis and treatment, reducing the need for formal diagnoses at later stages [17]. Modifications in diagnostic criteria could also play a role; if thresholds

were raised or the focus shifted to more severe cases, fewer children might be diagnosed [18]. Additionally, public health policies that prioritize mental health screening and intervention could have contributed to early identification and support for at-risk children, thus reducing the incidence of formal diagnoses [19, 20].

The category of diagnoses related to symptoms, signs, or abnormalities exhibited fluctuations, with a notable spike in 2019 - reaching 15.6 per 1000 children - followed by a decline to 4.9 per 1000 in 2022. Several factors could explain these fluctuations. The spike observed in 2019 may be linked to targeted health initiatives or screening programs in specific regions, such as Central Kazakhstan, where an increase in diagnoses was noted between 2017 and 2019. Such programs could have temporarily raised the detection rate of various symptoms and abnormalities. Increased awareness among parents and healthcare professionals during specific periods might have also led to higher reporting rates, driven by public health campaigns emphasizing the importance of early childhood health [21]. Furthermore, environmental or social factors unique to certain regions or periods could have influenced these fluctuations, with economic stress, changes in social services, or environmental events temporarily affecting child health and diagnosis rates [22–24].

In contrast to the decline in mental and behavioral disorder diagnoses, the data reveals a substantial increase in autism spectrum disorder (ASD) diagnoses in Kazakhstan over the six-year period. Diagnoses of "Childhood Autism" increased fivefold, while those of "Atypical Autism" increased fourfold among children aged 0-17 years. This rise is likely due to improved awareness of ASD among parents and healthcare providers, coupled with enhanced diagnostic capacity. As global knowledge about autism has expanded, more children are being recognized and diagnosed earlier, contributing to the sharp increase in diagnoses [25]. Changes in diagnostic criteria, which have become more inclusive of a broader spectrum of symptoms, could also result in more children being diagnosed with ASD, including those with milder or atypical forms that might have been overlooked in the past. The increase in diagnoses may further reflect improvements in Kazakhstan's healthcare infrastructure, particularly in the area of specialized services for developmental disorders. As more facilities and professionals become equipped to diagnose and manage autism, diagnosis rates naturally rise. The data also highlights regional variations, with Central Kazakhstan experiencing different trends compared to the national average. This suggests that regional factors, such as differences in healthcare access, public health policies, or socio-economic conditions, might significantly influence diagnosis rates.

These observed trends have significant implications for public health in Kazakhstan. The decline in mental and behavioral disorder diagnoses among young children suggests improvements in early intervention and possibly a shift in focus toward prevention. However, the substantial increase in autism diagnoses indicates a growing need for specialized services and support systems for children with ASD and their families. The rise in autism diagnoses creates an urgent demand for specialized educational, behavioral, and medical services. Early intervention programs are crucial in improving outcomes for children with ASD, and Kazakhstan will need to continue expanding these services to meet the increasing need. The differences in diagnosis trends between Central Kazakhstan and the national average underscore the importance of addressing regional disparities in healthcare access and quality. Public health strategies must be tailored to regional needs to ensure equitable access to services across the country. The trends also emphasize the need for ongoing development and refinement of mental health policies in Kazakhstan, particularly those targeting early childhood. Integrating mental and behavioral health into primary healthcare services could help maintain and even accelerate the decline in disorder diagnoses. Furthermore, as the number of children diagnosed with autism rises, there is a growing need for widespread autism awareness campaigns and professional training. Educating the public and healthcare providers about the signs, symptoms, and management of ASD can facilitate earlier diagnosis and intervention, ultimately improving the quality of life for affected children [26,27].

Conclusions

The trends observed in mental, behavioral, and autism diagnoses among children in Kazakhstan reflect both positive developments and emerging challenges in the country's public health landscape. While the decline in mental and behavioral disorder diagnoses is encouraging, the significant rise in autism diagnoses necessitates a strategic response. Ensuring that Kazakhstan's healthcare system can meet the needs of all children, particularly those with developmental disorders, will require continued investment in healthcare infrastructure, professional training, and public awareness campaigns. Addressing regional disparities and ensuring equitable access to services across the country will be essential for the well-being of Kazakhstan's youngest citizens.

Conflict of interests. Authors declare the absence of a conflict of interest.

Funding. There are no external sources for this research. The work was carried out as part of the dissertation work of the first author.

Author contributions. Conceptualization – K.N.; methodology – K.N., B.O., M.L., and N.D.; formal analysis – K.N.; writing (original draft preparation) – K.N. and M.L.; writing (review and edition) – B.O. and N.D. All authors have read, agreed to release version of a manuscript and signed the Author's right transfer form.

References

1. Mental health of adolescents. [Cited 17 Aug 2024]. Available online: https://www.who.int//news-room/fact-sheets/detail/adolescent-mental-health/?gad_source=1&gclid=Cj0KCQjwlIG2BhC4ARIsADBgpVT1h941jaNoYDi0SpZ6vQD1WLyCRJkyinv38bbH8lzMMeLIY4np__MaAjtrEALw_wcB.

2. Autism. [Cited 17 Aug 2024]. Available online: https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders?gad_source=1&gclid=Cj0KCQjwlIG2BhC4ARIsADBgpVQVyjMEfu4l8Pqb03JP2K8jl2LUff7h7IHuraF3b_GChz6P9iMe-3MaAgICEALw_wcB.

3. Zakirova-Engstrand R., Yakubova G. A scoping review of autism research conducted in Central Asia: Knowledge gaps and research priorities. Autism. 2024; 28(2): 342. [Google Scholar]

4. Amirbekova G., Abdikerova G. Mental health disorder among children: Social adaptation and rehabilitation. J Hum

Behav Soc Environ. 2021; 31(5): 661-672. [Crossref]

5. Zeidan J., Fombonne E., Scorah J., Ibrahim A. et al. Global prevalence of autism: A systematic review update. Autism Res. 2022; 15(5): 778-790. [Crossref]

6. Chaste P., Leboyer M. Autism risk factors: genes, environment, and gene-environment interactions. Dialogues Clin Neurosci. 2012; 14(3): 281-292. [Crossref]

7. Polanczyk G.V., Salum G.A., Sugaya L.S., Caye A. et al. Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. J Child Psychol Psychiatry. 2015; 56(3): 345-365. [Crossref]

8. Ayano G., Demelash S., Gizachew Y., Tsegay L. et al. The global prevalence of attention deficit hyperactivity disorder in children and adolescents: An umbrella review of meta-analyses. J Affect Disord. 2023; 339: 860-866. [Crossref]

9. Vasileva M., Graf R.K., Reinelt T., Petermann U. et al. Research review: A meta-analysis of the international prevalence and comorbidity of mental disorders in children between 1 and 7 years. J Child Psychol Psychiatry. 2021; 62(4): 372-381. [Crossref]

10. Dey M., Landolt M.A., Mohler-Kuo M. Health-related quality of life among children with mental disorders: A systematic review. Qual Life Res. 2012; 21(10): 1797-1814. [Crossref]

11. Dalsgaard S., McGrath J., Østergaard S.D., Wray N.R. et al. Association of Mental Disorder in Childhood and Adolescence With Subsequent Educational Achievement. JAMA Psychiatry. 2020; 77(8): 797-805. [Crossref]

12. Diendorfer T., Seidl L., Mitic M., Mittmann G. et al. Determinants of social connectedness in children and early adolescents with mental disorder: A systematic literature review. Dev Rev. 2021; 60: 100960. [Crossref]

13. "It can be done" – combating stigma and discrimination for better mental health services in Kazakhstan. [Cited 17 Aug 2024]. Available online: https://www.who.int/azerbaijan/news/item/10-10-2022-it-can-be-done----combating-stigma-and-discrimination-for-better-mental-health-services-in-kazakhstan.

14. Akhand M.H. Factors contributing to mental health problems in Kazakhstan: literature review. 2019. [Google Scholar]

15. Spankulova L., Chulanova Z., Konyrbay A. Evaluating Healthcare Accessibility in Kazakhstan: Urban and Rural Perspectives. Eurasian J Econ Bus Studies. 2024; 68(2): 5-19. [Crossref]

16. Raja S., Wood S.K., Pfau J. Integration of mental health services into primary care settings. Essentials Global Mental Health. 2014: 126; 126-134. [Crossref]

17. Costello E.J. Early Detection and Prevention of Mental Health Problems: Developmental Epidemiology and Systems of Support. J Clin Child Adolesc Psychol. 2016; 45(6): 710-717. [Crossref]

18. King M., Bearman P. Diagnostic change and the increased prevalence of autism. Int J Epidemiol. 2009; 38(5): 1224-1234. [Crossref]

19. Sacco R., Camilleri N., Eberhardt J., Umla-Runge K. et al. A systematic review and meta-analysis on the prevalence of mental disorders among children and adolescents in Europe. Eur Child Adolesc Psychiatry. 2022; 33(9): 2877-2894. [Crossref]

20. Pather S., Somerton M., Jaxybayeva A., Stolyarova V., Khanin S. Diagnosing Children With Intellectual Impairment and Autism in Kazakhstan. 2020. [Google Scholar]

21. Moldavsky M., Sayal K. Knowledge and attitudes about attention-deficit/hyperactivity disorder (ADHD) and its treatment: The views of children, adolescents, parents, teachers and healthcare professionals. Curr Psychiatry Rep. 2013; 15(8): 1-7. [Crossref]

22. Borowsky S.J., Rubenstein L.V., Meredith L.S., Camp P. et al. Who is at risk of nondetection of mental health problems in primary care? J Gen Intern Med, 2000; 15(6): 381-388. [Crossref]

23. Viinamäki H., Kontula O., Niskanen L., Koskela K. The association between economic and social factors and mental health in Finland. Acta Psychiatr Scand, 1995; 92(3): 208-213. [Crossref]

24. State of mental health care in the Republic of Kazakhstan | 3 | Routle. [Cited 17 Aug 2024]. Available online: https://www.taylorfrancis.com/chapters/edit/10.4324/9781315884622-3/state-mental-health-care-republic-kazakhstan-saya-nurmagambetova-marat-assimov.

25. Hahler E.M., Elsabbagh M. Autism: A Global Perspective. Curr Dev Disord Reports, 2015; 2(1): 58-64. [Crossref]

26. Lord C. The future of autism: Global & local achievements & challenges. Indian J Med Res. 2020; 151(4): 263-265. [Crossref]

27. Malcolm-Smith S., Hoogenhout M., Ing N., Thomas K.G.F. et al. Autism spectrum disorders - Global challenges and local opportunities. J Child Adolesc Ment Health, 2013; 25(1): 1-5. [Crossref]

Жас балалардағы психикалық және мінез-құлық бұзылыстары саласындағы үрдістер және Қазақстанда аутизм диагноздарының өсуі: өзгерістердің онжылдығы

Нукештаева К.Е. [1], Омаркулов Б.К. [2], Любченко М.Ю. [3], DeLellis Nailya [4]

[1] Ассистент-профессор, Қоғамдық денсаулық мектебі, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: nukeshtaeva@qmu.kz

[2] Профессор, отбасылық медицина кафедрасы, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: omarkulov@qmu.kz

[3] Профессор, неврология, нейрохирургия, психиатрия және оңалту кафедрасы, Қарағанды медицина университеті, Қарағанды, Қазақстан. E-mail: lyubchenko@qmu.kz

[4] Профессор, Денсаулық сақтау ғылымдары кафедрасы, Герберт және Грейс Доу атындағы медициналық кәсіптер колледжі, Мичиган орталық университеті, жағымды тау, АҚШ. E-mail: delel1no@cmich.edu

Түйіндеме

Зерттеудің мақсаты: Бұл зерттеу 2012 жылдан 2022 жылға дейін Қазақстанда 0-5 жас аралығындағы балалар арасында психикалық және мінез-құлық бұзылыстарымен, соның ішінде аутизм спектрінің бұзылуымен сырқаттанушылық тенденцияларын зерттейді. Зерттеудің мақсаты-Орталық Азия контекстіндегі Қоғамдық денсаулық сақтау саясаты мен клиникалық тәжірибенің кеңірек салдарын түсіну.

Әдістері. Деректер Қазақстан Республикасы Денсаулық сақтау министрлігінің психикалық және мінез-құлық бұзылыстарының бастапқы диагноздарын, 0-5 жас аралығындағы балалардағы симптомдарды, белгілерді және дамуындағы ауытқуларды қамтитын статистикалық жылнамаларынан алынды. Талдау ұлттық және өңірлік деңгейлерге, әсіресе Орталық Қазақстанда ерекше назар аудара отырып, онжылдықтағы үрдістерді қамтыды.

Нәтижесі. 0-ден 5 жасқа дейінгі балалардағы психикалық және мінез-құлық бұзылыстарының жиілігі 2012 жылы 1000-ға шаққанда 1,2-ден 2022 жылы 1000-ға шаққанда 0,3-ке дейін тұрақты төмендеуді көрсетті. Симптомдар мен ауытқуларға байланысты диагноздар өзгеріп отырды, 2019 жылы айтарлықтай өсу байқалды (1000-ға 15,6), содан кейін 2022 жылға қарай 1000-ға 4,9-ға дейін төмендеді. Керісінше, ASD диагноздары айтарлықтай өсті, 2016 жылдан 2022 жылға дейін "Балалық аутизмнің" 5 есе және "атипті аутизмнің" 4 есе өсуі.

Қорытынды. Нәтижелер ерте балалық шақтағы психикалық және мінез-құлық бұзылыстарының диагностикасының төмендеуін көрсетеді, яғни Аутизм диагнозының айтарлықтай өсуімен салыстырғанда. Бұл тенденциялар қоғамдық денсаулық сақтаудың мақсатты стратегияларының, ерте араласудың кеңейтілген бағдарламаларының және Қазақстандағы аутизм үшін көбірек хабардарлық пен диагностикалық мүмкіндіктердің қажеттілігін көрсетеді. Өңірлік айырмашылықтар, әсіресе орталық Қазақстанда, бүкіл ел бойынша денсаулық сақтауға тең қолжетімділіктің маңыздылығын атап көрсетеді.

Түйін сөздер: аутизм спектрінің бұзылуы, психикалық денсаулық, ерте балалық шақ, Қазақстан, қоғамдық денсаулық, эпидемиология.

Тенденции в области психических и поведенческих расстройств у детей раннего возраста и рост числа диагнозов аутизма в Казахстане: Десятилетие перемен

Нукештаева К.Е. [1], Омаркулов Б.К. [2], Любченко М.Ю. [3], DeLellis Nailya [4]

[1] *Ассистент-профессор, Школа Общественного здоровья, Медицинский университет Караганды, Караганда, Казахстан. E-mail: nukeshtaeva@qmu.kz*

[2] *Профессор, Кафедра семейной медицины, Медицинский университет Караганды, Караганда, Казахстан.*

E-mail: omarkulov@qmu.kz

[3] *Профессор, Кафедра неврологии, нейрохирургии, психиатрии и реабилитаци, Медицинский университет Караганды, Караганда, Казахстан. E-mail: lyubchenko@qmu.kz*

[4] *Профессор, Кафедра наук о здоровье, Колледж медицинских профессий имени Герберта и Грэйс Доу, Центральный университет Мичигана, Маунт Плезант, США. E-mail: delel1no@cmich.edu*

Резюме

Цель исследования: В этом исследовании изучаются тенденции заболеваемости психическими и поведенческими расстройствами, включая расстройства аутистического спектра, среди детей в возрасте от 0 до 5 лет в Казахстане с 2012 по 2022 год. Целью исследования является понимание более широких последствий для политики общественного здравоохранения и клинической практики в центральноазиатском контексте.

Методы. Данные были получены из статистических ежегодников Министерства здравоохранения Республики Казахстан, охватывающих первичные диагнозы психических и поведенческих расстройств, симптомы, признаки и отклонения в развитии у детей в возрасте от 0 до 5 лет. Анализ включал тенденции за десятилетие, уделяя особое внимание как национальному, так и региональному уровням, особенно в Центральном Казахстане.

Результаты. Заболеваемость психическими и поведенческими расстройствами у детей в возрасте от 0 до 5 лет показала устойчивое снижение с 1,2 на 1000 в 2012 году до 0,3 на 1000 в 2022 году. Диагнозы, связанные с симптомами и отклонениями, колебались, с заметным всплеском в 2019 году (15,6 на 1000), за которым последовало снижение до 4,9 на 1000 к 2022 году. Напротив, диагнозы РАС значительно возросли, с пятикратным ростом «детского аутизма» и четырехкратным ростом «атипичного аутизма» с 2016 по 2022 год.

Выводы. Результаты показывают снижение диагностики психических и поведенческих расстройств в раннем детском возрасте, контрастирующее со значительным ростом диагностики аутизма. Эти тенденции подчеркивают необходимость целевых стратегий общественного здравоохранения, расширенных программ раннего вмешательства и большей осведомленности и диагностических возможностей для аутизма в Казахстане. Региональные различия, особенно в центральном Казахстане, подчеркивают важность равного доступа к здравоохранению по всей стране.

Ключевые слова: расстройства аутистического спектра, психическое здоровье, раннее детство, Казахстан, общественное здоровье, эпидемиология.

https://doi.org/10.32921/2225-9929-2024-4-59-43-49
UDC 616.8-00;616.831-006.6
IRSTI 76.29.49;76.29.51

A descriptive review

The Principles of Creating and Maintaining Biobanks: A Thorough Analysis of the Global Literature

Makar Solodovnikov [1], Ayaulym Doskaliyeva [2], Dinara Baiskhanova [3], Ainur Turzhanova [4], Xeniya Bobrova [5], Aidos Doskaliyev [6], Serik Akshulakov [7]

[1] Head of the Research Management Department, National Center for Neurosurgery, Astana, Kazakhstan. E-mail: makar.solodovnikov@ncn.kz
[2] Manager of the Hospital Management Department, National Center for Neurosurgery, Astana, Kazakhstan. E-mail: rakymzhan.ay@ncn.kz
[3] PhD candidate, Laboratory of Molecular Gastroenterology and Tumor Biology, Christian-Albrechts-University of Kiel, Germany. E-mail: dinara.baiskhanova@gmail.com
[4] Senior Specialist of the Research Management Department, National Center for Neurosurgery, Astana, Kazakhstan. E-mail: turzhanova.as@ncn.kz
[5] Senior Specialist of the Research Management Department, National Center for Neurosurgery, Astana, Kazakhstan. E-mail: bobrova.xn@ncn.kz
[6] Director of Strategy and Science, National Center for Neurosurgery, Astana, Kazakhstan. E-mail: aidos.doskaliev@ncn.kz
[7] Chief Executive Officer of JSC "National Centre for Neurosurgery", Astana, Kazakhstan. E-mail: serik.akshulakov@ncn.kz

Abstract

The increasing incidence of tumors in the human central nervous system has prompted the urgent need for a unified cryo-storage facility with a systematized database to aid in understanding brain cancer initiation, development, and progression. Biobanks have emerged as essential resources for collecting and preserving human tissue samples, particularly for studying tumor disorders.

The purpose of this review is to highlight the role of oncological biobanks in the era of personalized medicine, focusing on the importance of establishing a biobank dedicated to human brain tumor tissue. By collecting and storing high-quality tumor samples, researchers can gain insights into the molecular and biological mechanisms of tumor diseases and develop novel therapeutic strategies.

The review discusses the need for standardization in sample collection, processing, storage, and distribution, emphasizing the importance of accurate characterization and quality control to ensure reliable results. Additionally, it explores the significance of biobanks in identifying predictors of drug effectiveness, developing targeted therapies, and predicting clinical outcomes. The review also addresses the global challenges in establishing biobanks, such as fragmented sample collection and certification, lack of standardized protocols, and limited integration of patient data. Furthermore, it highlights the need for comprehensive electronic biobanks that facilitate the study of central nervous system tumors, personalized medicine, and advancements in neurosciences.

The review concludes by emphasizing the importance of biobanks as valuable resources for molecular and histopathological studies, biomarker discovery, and population-based research. The establishment and proper governance of biobanks are crucial for maintaining transparency, credibility, and scientific progress. Overall, oncological biobanks play a pivotal role in advancing cancer research, personalized medicine, and improving therapeutic outcomes in the field of oncology.

Key words: Biobank, neuro-oncology, cancer tissue, central nervous system, infrastructure.

Corresponding author: Ainur Turzhanova, Senior Specialist of the Research management Department, National Center for Neurosurgery, Astana, Kazakhstan
Postal code: 010000
Address: Kazakhstan Astana, Turan Ave, 34/1
Phone: +7 775 536 95 42
E-mail: turzhanova.as@ncn.kz

J Health Dev 2024; 4 (59): 43-49
Recieved: 09-09-2024
Accepted : 18-10-2024

Introduction

Currently, there is a global trend of increasing incidence of tumors occurring in the human central nervous system. Despite numerous research efforts aimed at discovering novel therapies for this type of disorder, treatment of brain tumors remains unsuccessful in many cases. To address this issue, there is an urgent need to establish a unified cryo-storage facility with a systematized database that can aid in understanding the mechanisms of brain cancer initiation, development, and progression.

Over the past few decades, there has been a growing interest in the development of biobanks for collecting human tissues [1]. The first biobank for human samples, intended for transplantation purposes, was established in the United States in 1949 [2]. Subsequently, biobanks were developed to collect samples for studying various diseases.

The development of modern technologies, molecular biological methods, and sequencing has required tissue materials to obtain sufficient samples for scientists to obtain more reliable results. Specialized biobanks containing biological samples taken from patients with specific disorders have emerged, including biobanks focused on tumor disorders, which are particularly important.

The aim of these biobanks is to collect cancer tissues and make them accessible for a large number of specimens of cancer origin [3]. With the emergence of personalized medicine and the development of individual treatment protocols, understanding the individual mechanisms of tumor initiation and development has become critical for identifying novel targets and treatment strategies. Previously, research on human diseases was largely carried out in animals, as it was believed that animal tissue samples were more readily available. However, it was later shown that results of studies on animals cannot be fully applied to human diseases [4]. In recent years, the emphasis has shifted to the collection of human tissue materials as a source of information for studying gene expression, proteomics, and signaling pathways. Modern technologies require a large number of samples, which can only be obtained by developing biobanks [5].

Over the past 20 years, the need for the use of biobanks has increased several times, and this trend is expected to continue in the future [6]. However, the problem of establishing biobanks persists worldwide. In many cases, sample collection and certification are still fragmented, and there is often no connection between data on patient history and treatment or follow-up information, even within the same institution. The lack of standardization of sample collection leads to variability in the collected material, which reduces its value and the ability to obtain reliable results. Therefore, it is necessary to accurately characterize the material, describe its processing and storage, and ensure the quality and reliability of any studies that use such samples [7]. Establishing a biobank dedicated to human brain tumor tissue has been proposed as a solution to the challenge of providing researchers with sufficient and reliable high-quality tumor samples. In recent years, it has become clear that these requirements can only be met by biobanks created at clinics, hospitals, and other medical institutions that specialize in neurosurgery, particularly neuro-oncology. Ensuring the standardization of processes related to tissue biobanking is crucial. This involves implementing uniform and consistent protocols for the collection, processing, storage, and distribution of biological samples in biobanks.

The aim of this review is to emphasize the importance of establishing a unified biobank for human brain tumor tissues to improve our understanding of brain cancer mechanisms. It will address the current challenges and the need for standardized protocols in tissue collection and storage to ensure high-quality samples for advancing research and personalized treatment strategies.

Role of oncological biobanks

The development of oncological biobanks is becoming increasingly relevant in the era of personalized medicine. Despite advances in cancer treatment, rates of malignant neoplasm morbidity and mortality remain high worldwide. Many therapeutic issues are still unresolved. Unfortunately, 20-30% of cancer patients develop tumor resistance to previously effective molecular-targeted therapy, and the disease progresses. In addition, it is complicated to influence this process effectively due to insufficient knowledge of the molecular biological properties of a tumor. Therefore, the search for new predictors and drug targets is a priority task of modern oncology. Moreover, saving a sample of a primary tumor of a particular patient may be useful for developing personalized therapy at any stage of the disease course [8].

One of the important tasks of modern oncology is to search for laboratory diagnostic methods of predictors of a particular anticancer drug's effectiveness in treating malignant neoplasms. In this context, preserving biological tumor samples makes it possible to re-examine them retrospectively to create highly informative test systems. The experience of developing various targeted antitumor drugs and identifying biological targets highlights the importance of having access to tissue sample materials stored in biobanks throughout the study, from the stage of identifying subgroups of patients with different genotypes to the stage of testing diagnostic tests that identify patients with contraindications to the use of a drug [9-11]. Standard randomized clinical trials are not sufficient in these situations to obtain approval from national regulatory agencies, such as the US Food and Drug Administration.

Interestingly, the first attempt to create an independent unit with the purpose of storing biological samples was made in 1948 within the framework of the project to identify risk factors for cardiovascular disease based on the study of peripheral blood samples (Farmingham Heart Study). The research results of this bank were published only 20 years after the beginning of its formation [12].

Collections of biomaterials have been created for a long time, but not all of them can be considered as biobanks. Thus, in almost all pathological departments of large hospitals and medical centers, as well as in clinical diagnostic or equivalent laboratories, a certain number of samples of biological tissue of patients (e.g., blood serum, paraffin blocks, cytological preparations) are stored, but such collections are not considered as biobanks for several reasons. The samples are limited in terms of the possibility of manipulation since they are taken from a specific patient for specific purposes and tasks and cannot be used for research purposes.

In addition, diagnostic laboratories and departments do not have enough space and facilities to store samples of various types of tumor. All of the above were prerequisites for the formation of a new, special field of

activity in medicine and biology, designated as biobanking, and the structure itself was called a biobank.

Biobank activities include not only the storage of samples and personal information but also their study on the research platform of the biobank itself. As a result, each sample is accompanied by a number of additional biological characteristics. Information about the samples and their annotation information, while maintaining anonymity with respect to the personal data of a donor, should be widely available to the scientific community, facilitating a wide variety of research within the stored collections. Properly organized and functioning biobanks also provide detailed information about the acquisition, processing, and storage of each sample, such as the time and method of sampling, and delivery conditions as well. All definitions and technical aspects of maintaining a biobank are considered most fully in the article by M. Fransson et al. [13].

According to Aitkulova and Daulbayeva [14], biobanks have become common in many developed countries worldwide, including the Republic of Kazakhstan. The authors also noted an urgent need for increased scientific knowledge, innovation, and personalized medicine approaches in the country. To achieve this goal, it is essential to create a biobank that collects tumor samples of the central nervous system and venous blood components of neurooncological patients. By doing so, it will be possible to study the molecular and biological mechanisms of tumor initiation, development, and progression, as well as further develop immune-histochemical and molecular cytogenetic studies, novel therapeutic methods (e.g. targeted therapy, pharmacogenomics), and neurosciences. Creating an electronic biobank for central nervous system tumors is particularly important in the era of personalized medicine since it aims to develop neurosciences [15].

The primary objective of human biosample biobanking is to preserve the samples for future research tasks such as genetic, proteomic, and metabolomic studies, as well as routine practical tasks like transplantation and reproduction [16, 17]. In oncology, biobanking focuses on searching for biomarkers that predict the onset and prognosis of the clinical behavior of tumors, developing new methods of prevention and treatment, and predicting their effectiveness and safety [18, 19].

Understanding the genetic, signaling, and metabolic nature of tumor diseases opens up new avenues for personalized medicine [20]. Comparing the results of molecular genetic studies with radiological imaging of pathological foci in vivo has applied value. For instance, it can help personalize drug selection and treatment regimens, target monitoring foci during the treatment process, and predict "responders" and "non-responders" for treatment [21].

Most biobanks store samples of different types, such as biological fluids (blood serum, saliva, urine), normal or pathological tissues, cell cultures, strains of bacteria, viruses, and nucleic acids. However, the need to compare a vast amount of data has led to creating various types of biobanks according to the objectives and ultimate goal of the study [22].

Historically, oncological biobanks were mainly tissue biobanks or tumor biobanks, aiming to compare the characteristics of tumor and healthy tissues. This approach allowed for an in-depth study of the molecular and biological basis of the disease, searching for diagnostic markers and new therapeutic targets. However, the modern oncological biobank is more than just a collection of tumor tissue. Other biological fluids and tissues such as blood and serum are essential for oncology research. Additionally, some projects require the isolation and preservation of nucleic acids [23, 24]. Therefore, oncological patient sample biobanks can not only be attributed to nosological ones but are also population biobanks due to the scale and importance of the tasks they solve [25-27].

Population biobanks provide an invaluable source of samples for many studies, enabling the scaling up of research [28-30]. Despite the importance of using pathomorphological samples in research, digital archives of pathological specimens are practically non-existent. Each pathomorphological department in the country stores tissue samples fixed in paraffin and histological preparations for at least 25 years after sampling. The collected pathomorphological samples are mainly used for clinical tasks and are not utilized for scientific research due to a lack of appropriate informed consent and associated information, sample quality, and processing standardization. The involvement of pathology archives in the activities of biobanks is low due to established traditions and workflows in clinical laboratories, a lack of interest of pathology departments in promoting scientific research, and current pathology laboratory equipment not meeting the high requirements of biobanking.

The worldwide cancer biobanks

Cancer biobanks around the world, as a variety of disease based biobanks, are vital for studying fundamental mechanisms of cancer initiation, progression and development. These cancer specimens' repositories store data on biomaterials with the accent on good quality management, results on molecular and histopatological studies.

General principles of biobanking

The process of formation of a biobank begins with the definition of a goal of the project, which should not be narrowly focused. The set target will determine the type of samples. The sample collection process begins with the signing of the patient's informed consent, which must be approved by the local ethical committee of an organization.

The functions of the body regulating the work of biobanks are carried out by the international organization International Society for Biological and Environmental Repositories (ISBER) and its branch European and Middle Eastern and African Society for Biopreservation and Biobanking (ESBB). The functions of ISBER are quite wide - the development of biobanking and the international network of biobanks, the accumulation of international experience relating to all aspects of biobanking and its stages, and the development of recommendations as well.

In addition to ISBER, which develops international recommendations for the organization of biobanks, there are international and European standardization organizations that develop standards for the organization of biobanks, as well as pre-analytical procedures. In August 2018, the International Organization for Standardization ISO published the biobanking standard ISO 20387:2018 [31].

Strict observance of all necessary ethical requirements is of great importance in the field of biobanking. Issues related to the establishment of the Biobank, as well as the approval and introduction into circulation of various documents regulating its activities were considered by the Ethics Committee of the Center. Moreover, the issues controlled by the Ethics Committee include: - compliance with ethical obligations; – voluntary provision of biological samples by patients and donors; – the safety of the procedures used for obtaining biological material; – the safety of personal data of patients and donors, through the implementation of data depersonalization algorithms; - completeness of information provided to donors of biological samples on the scientific goals of biobanking. The most important issue resolved by the Ethics Committee is the consideration and approval of the "Informed Consent of a Patient for Biobanking" and "Information for Patients" forms, which have been developed on the basis of ISBER recommendations [32].

The collection of blood samples and other fluids for biobanking is usually carried out during the initial diagnostic phase of the disease, either in the outpatient setting or in the 24-hour inpatient setting. In the case of tissue sampling for research purposes, the need and importance of a complete diagnosis should be the primary consideration. Tissue samples will only be deposited in a biobank if the necessary amount of material for all stages of diagnosis of the disease has been obtained. The involvement of a pathomorphologist, who must confirm the quality of the sample, is absolutely essential.

All necessary conditions (time, temperature, etc.) must be observed when transporting a sample. Once a sample arrives at a biobank, it is anonymised, labelled and processed. At this stage, the crucial step is sample aliquoting. Aliquoting is the process of dividing either the native sample or isolated fraction (plasma, serum) into samples to improve freezing and storage conditions and to create replicates of a sample, allowing it to be tested several times from the same patient without compromising its quality.

Biobanks presently represent a unique research infrastructure in need of adequate flexible governance mechanisms, which do not impede scientific progress. Governance tools for the biobanking industry are designed to maintain a balance between the needs of the scientific community and donors of biological material, with a focus on transparency and credibility at all stages of work [33].

Summarizing the long-term experience of a number of institutions and projects involving the resource of biobank, we can conclude that the correct operation of a biobank consists of several components (Figure 1):

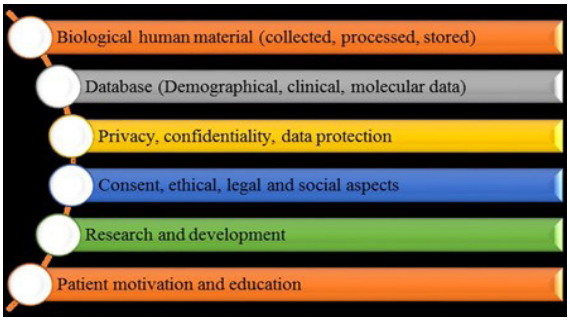


Figure 1 - Components of the biobank

• collection and storage of biological material in combination with medical and epidemiological data;

• dynamic development of a biobank – continuous collection of samples in the long term;

• connection of a biobank with current research projects;

• maintaining the anonymity of donors (patients who provided samples);

• use of uniform standards and management procedures.

Conclusion

Biobanks are essential tools for solving therapeutic issues in oncology, including studying risk factors for developing malignant tumors, searching for predictors of therapy response, and identifying new targets for targeted therapy. Today, biobanks are considered a unique research resource and a form of biological life insurance, not just for humans but for all species. Some authors even argue that biobanks play a crucial role in a country's biological security.

The creation of large-scale bioresource collections is not new, and it is gaining popularity worldwide. Developing oncobiobanks is crucial for conducting both fundamental research in molecular biology and clinical research into the search for new anticancer drugs, methods of detecting their effectiveness, and possible risk factors for tumor development. Currently, all targeted and immuno-oncological drugs and modern molecular genetic diagnostics have resulted from the use of biological samples taken from biobanks. The success in diagnosing, treating, and preventing cancer in recent decades is also due to the creation and development of a network of biobanks as the most important infrastructural element in this field.

The primary goal of biobanks is to provide a constant flow of biological samples for various studies. Biomaterials of various types are collected legally and ethically, and everyone who needs sample preparation, laboratory processing, and storage participates fully.

The samples are characterized fully and associated with the maximum possible volume of clinical and laboratory information.

The biobank of tumors of the central nervous system in Kazakhstan will contribute to the development of various areas of neuroscience, personalized and translational medicine. Translational medicine will allow for the rapid transfer of fundamental research results, mainly in the field of molecular cytogenetics and biochemistry, into clinical practice. The created biobank will expand and develop

personalized medicine and scientific activity, which will give a powerful impetus to the industry to meet the standards of developed countries.

Biobanking in Kazakhstan is still in its early stages, and developing a national network based on close cooperation between biobanks and medical institutions seems most relevant at this stage. This will provide the necessary basis for conducting our own fundamental and applied research in all areas of biomedicine, including oncology. It will also create a network of biobanks of central nervous system tumors among countries in Central Asia.

Conflict of interests. The authors declare no conflicts of interest.

Funding: The Article Processing Charges are provided by the National Centre for Neurosurgery, Astana, Kazakhstan

Author contributions: 1) S. Akshulakov, A. Doskaliyev, M. Solodovnikov, D. Baiskhanova, X.Bobrova - substantial contributions to the conception and design of the study, acquisition of the data, or analysis and interpretation of the data; 2) D. Baiskhanova, A. Doskaliyeva, A.Turzhanova - drafting the article or revising it critically for important intellectual content; and 3) S. Akshulakov, A. Doskaliyev, M. Solodovnikov - the final approval of the version to be published.

References

1. Le Page C., Köbel M., de Ladurantaye M., Rahimi K. et al. Specimen quality evaluation in Canadian biobanks participating in the COEUR repository. Biopreserv Biobank. 2013; 11(2): 83-93. [Crossref]

Ji X., Zhao X.M., Jiang J.J., Yin L. et al. Clinical biobanks, from the world to China. Biomed Environ Sci. 2014; 27(6): 481-483. [Google Scholar]

2. Coppola L., Cianflone A., Grimaldi A.M., Incoronato M. et al. Biobanking in health care: evolution and future directions. J Transl Med. 2019; 17(1): 1-18. [Crossref]

3. Agnihotri S., Burrell K.E., Wolf A., Jalali S. et al. Glioblastoma, a brief review of history, molecular genetics, animal models and novel therapeutic strategies. Arch Immunol Ther Exp. (Warsz) 2013; 61(1): 25-41. [Crossref]

4. Kamenski P.A., Sazonov A.E., Fedyanin A.A., Sadovnichy V.A. Biological collections: chasing the ideal. Acta Naturae. 2016; 8(2): 6-9. [Google Scholar]

5. Verlinden M., Nys H., Ectors N., Huys I. Access to biobanks: harmonization across biobank initiatives. Biopreserv Biobank. 2014; 12(6): 415-22. [Crossref]

6. Kaptain S., Tan L.K., Chen B. Her-2/neu and breast cancer. Diagn Mol Pathol. 2001; 10(3): 139-52. [Google Scholar]

7. Bazel R. Her-2: the making of Herceptin, a revolutionary treatment for breast cancer. Random House. 2011. [Google Scholar]

8. Pao W., Miller V., Zakowski M., Doherty J. et al. EGF receptor gene mutations are common in lung cancers from "never smokers" and are associated with sensitivity of tumors to gefitinib and erlotinib. Proc Natl Acad Sci USA. 2004; 101 (36): 13306-133011. [Crossref]

9. Riegman P.H., Morente M.M., Betsou F., De Blasio P. et al. Biobanking for better healthcare. Mol Oncol. 2008; 2(3): 213-22. [Crossref]

10. Fransson M.N., Rial-Sebbag E., Brochhausen M., Litton J.E. et al. Toward a common language for biobanking. Eur J Hum Genet. 2015; 23(1): 22-8. [Crossref]

11. Hainaut P., Vaught J., Zatloukal K., Pasterk M. Banking of Human Biospecimens. Switzerland: Springer. 2017; 239. [Google Scholar]

12. Goebell P.J., Morente M.M. New concepts of biobanks - strategic chance for uro-oncology. Urol Oncol. 2010; 28(4): 449-457. [Crossref]

13. Aitkulova A.B., Daulbayeva A.D. Biobanking and biomolecular resources research infrastructure in Kazakhstan. Biopreserv Biobank. 2014; 12(5): 311-315. [Crossref]

14. Hoeben A., Joosten E.A.J, van den Beuken-van Everdingen M.H.J. Personalized medicine: Recent progress in cancer therapy. Cancers. 2021; 13(2): 242. [Crossref]

15. Chin L., Andersen J.N., Futreal P.A. Cancer genomics: from discovery science to personalized medicine. Nature Medicine. 2011; 17(3): 297-303. [Crossref]

16. De Souza Y.G., Greenspan J.S., Biobanking J.D.I. Biobanking past, present and future: responsibilities and benefits. AIDS. 2013; 27(3): 303-312. [Crossref]

17. Leitsalu L., Haller T., Esko T., Tammesoo M.L. et al. Cohort Profile: Estonian Biobank of the Estonian Genome Center, University of Tartu. Int J Epidemiol. 2015; 44 (4): 1137-47. [Crossref]

18. Zawati M.N.H., Borry P., Howard H. Closure of populationbiobanks and direct-to-consumer genetic testing companies. Hum Genet. 2011; 130(3): 425-432. [Crossref]

19. Hewitt R., Watson P., Defining J. G. Defining biobank. Biopreservation and Biobanking, 2011; 9(1): 1-8. [Crossref]

20. Huang,T. Y., Min J. J., Qu L. J., Chen W., et al. Radiogenomics for predicting p53 status, PD-L1 expression and prognosis with machine learning in lung adenocarcinoma. EBioMedicine, 2018; 37: 68-76. [Crossref]

21. Jarvik G.P., Amendola L.M., Berg J.S., Brothers K. et al. Return of Genomic Results to Research Participants: The Floor, the Ceiling, and the Choices In Between. Am J Hum Genet. 2014; 94(6): 818-826. [Crossref]

22. Leitsalu L., Haller T., Esko T., Tammesoo M.L. et al. Cohort Profile: Estonian Biobank of the Estonian Genome Center, University of Tartu. Int J Epidemiol. 2015; 44(4): 1137-1147. [Crossref]

23. Zawati M.N.H., Borry P., Howard H. Closure of populationbiobanks and direct-to-consumer genetic testing companies. Hum Genet. 2011; 130: 425-432. https://doi.org/10.1007/s00439-011-1019-4

24. Awadalla P, Boileau C, Payette Y., Idaghdour Y. et al. Cohort profile of the CARTaGENE study: Quebec's population-based biobank for public health and personalized genomics. Int J Epidemiol. 2013; 42(5): 1285-1299. [Crossref]

25. Bonnelykke K., Sleiman P., Nielsen K., Kreiner-Møller E. et al. Agenome-wideas sociation study identifies CDHR3 asasus ceptibility locus for early childhoodasthm a with sever exacerbations. Nat Genet. 2014; 46(1): 51-55. [Crossref]

26. Haukkala A., Kujala E., Alha P., Salomaa V. et al. The return of unexpected research results in a biobankstudy and

referral to health care for heritable long QT syndrome. Public Health Genomics. 2013; 16(5): 241-250. [Crossref]

27. Wood A.R., Esko T., Yang J., Vedantam S. et al. Defining the role of common variation in the genomic and biological architecture of adult human height. Nat Genet. 2014; 46 (11): 1173-1186. [Crossref]

28. Clavreul A., Soulard G., Lemée J.M., Rigot M. et al. FGB network. The French glioblastoma biobank (FGB): a national clinicobiological database. J Transl Med. 2019; 17(1): 133. [Crossref]

29. Saifuddin S.R., Devlies W., Santaolalla A., Cahill F. et.al. King's Health Partners' Prostate Cancer Biobank (KHP PCaBB). BMC Cancer. 2017; 17: 1-8. [Crossref]

30. Del Vecchio S.J., Owens E.P., Ellis R.J. Kidney cancer biobanking: considerations for a single institutional biorepository. Transl Androl Urol. 2019; 8(2): 224-228. [Crossref]

31. Sanner J.E., Nomie K.J. The biobank at the University of Texas Health Science Center at Houston. Biopreserv Biobank. 2015; 13(3): 224-225. [Crossref]

32. Waldmann A., Anzeneder T., Katalinic A. Patients and Methods of the PATH Biobank - A Resource for Breast Cancer Research. Geburtshilfe Frauenheilkd. 2014; 74(4): 361-369. [Crossref]

Биобанктерді құру және қолдау принциптері: Әдебиеттер көздерін талдау

Солодовников М. [1], Доскалиева А. [2], Байсханова Д. [3], Туржанова А. [4], Боброва К. [5], Доскалиев А. [6], Акшулаков С. [7]

[1] Ғылыми зерттеулер менеджменті бөлімінің бөлім бастығы, Ұлттық нейрохирургия орталығы, Астана, Қазақстан. E-mail: makar.solodovnikov@ncn.kz

[2] Госпитальдық менеджмент бөлімінің менежері, Ұлттық нейрохирургия орталығы, Астана, Қазақстан. E-mail: rakymzhan.ay@ncn.kz

[3] PhD- үміткер, молекулалық гастроэнтерология и ісік биологиясы зертханасы, Кристиан Альбрехт Университеті, Киль, Германия. E-mail: dinara.baiskhanova@gmail.com

[4] Ғылыми зерттеулер менеджменті бөлімінің бас маманы, Ұлттық нейрохирургия орталығы, Астана, Қазақстан. E-mail: turzhanova.as@ncn.kz

[5] Ғылыми зерттеулер менеджменті бөлімінің бас маманы, Ұлттық нейрохирургия орталығы, Астана, Қазақстан. E-mail: bobrova.xn@ncn.kz

[6] Стратегия және ғылым жөніндегі директор, Ұлттық нейрохирургия орталығы, Астана, Қазақстан. E-mail: aidos.doskaliev@ncn.kz

[7] Ұлттық нейрохирургия орталығының Басқарма төрағасы, Астана, Қазақстан. E-mail: serik.akshulakov@ncn.kz

Түйіндеме

Орталық жүйке жүйесі ісіктерінің өсіп келе жатқан аурулары ми ісіктерінің пайда болу, даму және прогрессия механизмдерін зерттеу үшін жүйеленген дерекқоры бар бірыңғай криосақтау орталығын құруды талап етеді. Биобанктер адам тіндерінің үлгілерін жинау және сақтау үшін, әсіресе ісік ауруларын зерттеу үшін маңызды ресурстарға айналды.

Бұл шолудың мақсаты - ми ісіктерінің тіндеріне арналған биобанк құрудың маңыздылығына назар аудара отырып, жекелендірілген медицина дәуіріндегі онкологиялық биобанктердің рөлін атап өту. Ісіктердің сапалы үлгілерін жинау және сақтау зерттеушілерге ісік ауруларының молекулалық және биологиялық механизмдері туралы түсінік алуға және жаңа терапиялық стратегияларды әзірлеуге мүмкіндік береді.

Шолуда үлгілерді жинау, өңдеу, сақтау және таратуды стандарттау қажеттілігі талқыланады, нәтижелердің сенімділігін қамтамасыз ету үшін дәл сипаттау мен сапаны бақылаудың маңыздылығына назар аударылады. Биобанктердің дәрі-дәрмектің тиімділігін болжаушыларды анықтаудағы, мақсатты терапияны дамытудағы және клиникалық нәтижелерді болжаудағы маңыздылығы да қарастырылады. Шолу үлгілерді жинау мен сертификаттаудың үзінділері, стандарттalған хаттамалардың болмауы және пациенттер туралы деректердің шектеулі интеграциясы сияқты биобанктерді құрудағы жаһандық мәселелерді қарастырады. Сонымен қатар, орталық жүйке жүйесінің ісіктерін, жекелендірілген медицинаны және нейрогылымдардың жетістіктерін зерттеу үшін кешенді электронды биобанктердің қажеттілігі атап өтіледі.

Қорытындылай келе, биобанктердің молекулалық және гистопатологиялық зерттеулер, биомаркерлерді ашу және популяцияны зерттеу үшін құнды ресурстар ретіндегі маңыздылығы атап өтіледі. Биобанктерді құру және дұрыс басқару ашықтықты, сенімділікті және ғылыми прогресті қамтамасыз етудің кілті болып табылады. Жалпы, онкологиялық биобанктер қатерлі ісік зерттеулерін дамытуда, жекелендірілген медицинада және онкологиядағы терапевтік нәтижелерді жақсартуда маңызды рөл атқарады.

Түйін сөздер: Биобанк, нейроонкология, ісік тіндері, орталық жүйке жүйесі, инфрақұрылым.

Принципы создания и поддержания биобанков: Анализ литературы

Солодовников М. [1], Доскалиева А. [2], Байсханова Д. [3], Туржанова А. [4], Боброва К. [5], Доскалиев А. [6], Акшулаков С. [7]

[1] Начальник отдела менеджмента научных исследований, Национальный центр нейрохирургии, Астана, Казахстан. E-mail: makar.solodovnikov@ncn.kz

[2] Менеджер отдела госпитального менеджмента, Национальный центр нейрохирургии, Астана, Казахстан. E-mail: rakymzhan.ay@ncn.kz

[3] PhD кандидат, Лаборатория молекулярной гастроэнтерологии и биологии опухолей, Университет Кристиана Альбрехта, Киль, Германия. E-mail: dinara.baiskhanova@gmail.com

[4] Главный специалист отдела менеджмента научных исследований, Национальный центр нейрохирургии, Астана, Казахстан. E-mail: turzhanova.as@ncn.kz
[5] Главный специалист отдела менеджмента научных исследований, Национальный центр нейрохирургии, Астана, Казахстан. E-mail: bobrova.xn@ncn.kz
[6] Директор по стратегии и науке, Национальный центр нейрохирургии, Астана, Казахстан. E-mail: aidos.doskaliev@ncn.kz
[7] Председатель Правления, Национальный центр нейрохирургии, Астана, Казахстан. E-mail: serik.akshulakov@ncn.kz

Резюме

Растущая заболеваемость опухолями центральной нервной системы требует создания единого центра криохранения с систематизированной базой данных для изучения механизмов возникновения, развития и прогрессирования опухолей мозга. Биобанки стали важными ресурсами для сбора и хранения образцов тканей человека, особенно для изучения опухолевых заболеваний.

Цель данного обзора — подчеркнуть роль онкологических биобанков в эпоху персонализированной медицины, сосредоточив внимание на важности создания биобанка, посвященного тканям опухолей мозга. Сбор и хранение качественных образцов опухолей позволит исследователям получить представление о молекулярных и биологических механизмах опухолевых заболеваний и разрабатывать новые терапевтические стратегии.

В обзоре обсуждается необходимость стандартизации сбора, обработки, хранения и распределения образцов, акцентируется внимание на важности точной характеристики и контроля качества для обеспечения надежности результатов. Также рассматривается значимость биобанков в выявлении предсказателей эффективности лекарств, разработке целевых терапий и предсказании клинических исходов. Обзор затрагивает глобальные проблемы в создании биобанков, такие как фрагментарность сбора и сертификации образцов, отсутствие стандартизированных протоколов и ограниченная интеграция данных о пациентах. Более того, подчеркивается необходимость комплексных электронных биобанков для изучения опухолей центральной нервной системы, персонализированной медицины и достижений в области нейронаук.

В заключение, акцентируется важность биобанков как ценных ресурсов для молекулярных и гистопатологических исследований, открытия биомаркеров и популяционных исследований. Создание и надлежащее управление биобанками имеют ключевое значение для обеспечения прозрачности, достоверности и научного прогресса. В целом, онкологические биобанки играют важную роль в развитии исследований рака, персонализированной медицины и улучшении терапевтических результатов в области онкологии.

Ключевые слова: биобанк, нейроонкология, опухолевая ткань, центральная нервная система, инфраструктура.

https://doi.org/10.32921/2225-9929-2024-4-59-50-58
UDC 616-089.844; 616.15-005
IRSTI 76.01;76.29.46

Review article

Ethical aspects of Organ Transplantation in Kazakhstan. Literature review

Gulnur Daniyarova [1], Aruzhan Asanova [2], Aidos Bolatov [3,4], Vitaliy Sazonov [5], Yuriy Pya [6], Kamila Akzholova [7]

[1] Academic secretary, University Medical Center, Astana, Kazakhstan. E-mail: daniyarova.g@umc.org.kz
[2] General manager of the Department of Science, University Medical Center, Astana, Kazakhstan. E-mail: asanova.aruzhan@umc.org.kz
[3] PhD-student, Shenzhen University, Shenzhen, China. E-mail: bolatovaidos@gmail.com
[4] Researcher, University Medical Center, Astana, Kazakhstan. E-mail: bolatovaidos@gmail.com
[5] Researcher, University Medical Center, Astana, Kazakhstan. E-mail: dr.sazonov@gmail.com
[6] Chairman of the board, University Medical Center, Astana, Kazakhstan. E-mail: yuriy.pya@umc.org.kz
[7] Researcher, University Medical Center, Astana, Kazakhstan. E-mail: kamila.akzholova@nu.edu.kz

Abstract

Over the past 50 years, transplantation has evolved into a widely successful practice around the world. However, significant disparities exist between countries regarding access to suitable transplants, as well as in the safety, quality, and effectiveness of the donation and transplantation of human cells, tissues, and organs.

The aim of this review is to define issues of organ transplantation in Kazakhstan worldwide.

The search was conducted using electronic databases, particularly PubMed, Google Scholar, Medline, and Scopus. Titles and abstracts of identified studies were screened for relevance, and full-text articles were reviewed for eligibility.

The following keywords were used in the search: solid organ transplantation, ethics in organ transplantation, organ preservation and challenges in organ transplantation. The search depth is 10 years.

The specifics of organ donation require addressing a number of complex moral, ethical, and legal issues, as it lies at the intersection of life and death, simultaneously affecting the interests of both deceased and living individuals. In this context, changing the attitudes of the medical community, particularly the staff of intensive care units, towards the challenges of organ donation is crucial for the advancement of transplantation in Kazakhstan.

Keywords: organ transplantation, living donors, transplant recipients, organ preservation solutions, ethics in organ transplantation.

Corresponding author: Gulnur Daniyarova, CF "University Medical Center", Astana, Kazakhstan
Postal code: 010000
Address: Kerey-Zhanibek khandar str. 5/1
Phone: +7-705-596-50-60
E-mail: daniyarova.g@umc.org.kz

J Health Dev 2024; 4 (59): 50-58
Recieved: 02-11-2024
Accepted : 14-12-2024

Introduction

Over the past 50 years, transplantation has evolved into a widely successful practice around the world. However, significant disparities exist between countries regarding access to suitable transplants, as well as in the safety, quality, and effectiveness of the donation and transplantation of human cells, tissues, and organs. Ethical considerations play a crucial role in this field, especially given the unmet needs of patients and the shortage of available transplants, which can create opportunities for trafficking in human body parts for transplantation [1].

Organ transplantation remains one of the most spectacular and consequential fields in 21st-century medicine, integrating advances in surgery, immunology, genetics, pharmacology, intensive care medicine, epidemiology, and ethics. The idea of prolonging life and wellbeing through organ transplantation captures worldwide attention of medical practitioners, students, and scientists alike. Today, organ transplantations are a common feature of medical practice in developed countries and increasingly in developing countries, and new advances in the field are frequently reported in the lay press.

Organ transplantation is among the most complex procedures in medicine for various reasons. It necessitates addressing the medical needs of the recipient while also coordinating with an appropriate donor, whether living or deceased. Both scenarios involve intricate ethical considerations, often complicated by subtle ethical and religious factors. One of the most contentious and challenging issues in the field is the ethical debate surrounding the timely and definitive determination of death. Public views on this issue are often shaped by religious and cultural beliefs, leading to variations in ethical standards across different cultures and religions [2].

The aim of this review is to define issues of organ transplantation in Kazakhstan worldwide.

Material and methods

The search was conducted using electronic databases, particularly PubMed, Google Scholar, Medline, and Scopus. Titles and abstracts of identified studies were screened for relevance, and full-text articles were reviewed for eligibility.

The inclusion criteria for this review encompassed literature reviews, meta-analyses, and comparative studies that address challenges in solid organ transplantation from both clinical and healthcare perspectives. Studies identifying challenges within ethical frameworks and management issues related to organ transplantation were also included. Additionally, research reporting on advancements in organ preservation was considered. Both published and unpublished studies were incorporated into the review.

The exclusion criteria eliminated studies that do not provide clear definitions or results for the challenges in organ transplantation, studies not available in English, animal studies, and in vitro studies are excluded.

The following keywords were used in the search: solid organ transplantation, ethics in organ transplantation, organ preservation and challenges in organ transplantation. The search depth is 25 years. The selection of a 25-year search depth for the study was driven by the need to balance comprehensiveness with relevance. This time frame ensures inclusion of foundational studies that provide critical background information and contextual understanding. Simultaneously, it filters out information that may have become outdated, as statistical data.

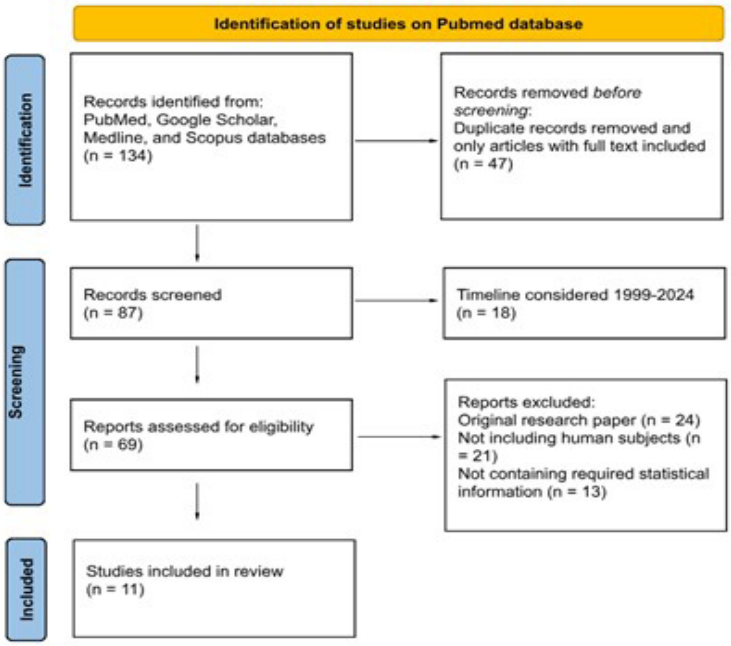


Figure 1 - Flow chart showing selection of studies for literature review

Results

Identifying and addressing public views towards the consent system for organ procurement is key in developing effective and ethical organ donation policies. Public awareness of the consent model and understanding of the procedures to express consent or refusal for organ donation are lower in opt-out countries compared to opt-in countries. Despite the growing trend in Europe and other regions to shift from opt-in to opt-out policies, the majority

of people tend to support the opt-in system, regardless of the consent model in place in their country. Furthermore, when given multiple options, people generally prefer opt-in or mandatory choice over opt-out [3]. The Table 1 summarizes the modern options of donation, including the ethical considerations regarding the chosen option and countries, supporting them.

One major concern with the opt-out system is the ethical issues it raises. For instance, presumed consent for organ donation reached its peak in the US in 1990 but was later rejected in 2006 by the UAGA, partly due to concerns about professionals abusing the authority that presumed consent entailed.

Furthermore, there is concern as to whether presumed consent accurately reflects the patient's wishes, with the potential to violate a donor's autonomy if they did not want to donate but failed to register to opt-out.

Table 1 - The description of donation options

Option	Description	Ethical consideration	Consent	Countries, approving chosen option [30]
Opt-in	Explicit and active agreement on organ donation	Family members misalignment with individual's wishes	Consent of a donor	United Kingdom, Canada, Brazil, Demark
Opt-out	Explicit disagreement on organ donation	Failing to register for opt-out option	Presumed consent of a patient to be donor unless registering for opt-out	France, Wales, Scotland
Mandated consent	Agreement on organ donation	Forcing individuals to make a choice	Consent of a donor	New Zealand

An alternative option to both the opt-in and opt-out systems is mandated consent, which requires that competent adults register their intent to donate or not donate. It allows individuals to choose which organs they want to donate and to give permission to relatives to have the final say. However, if relatives are not granted this permission, then the wishes of the deceased are final and cannot be superseded. Mandated consent removes the ethical concerns regarding the intentions of those who fail to register a choice. However, it poses other ethical implications, such as forcing individuals to make a choice [4].

In practice, both opt-in and opt-out systems often uphold the status quo when family consent is involved. In opt-in systems, families may feel uncertain about their loved ones' wishes unless there is explicit documentation or prior discussion regarding organ donation. In opt-out systems, the lack of an entry in the opt-out register is not typically viewed as a definitive indication of the individual's desire to donate. This raises questions about whether the person was aware of, understood, or engaged with the opt-out policy, unless the family had previously talked about donation preferences.

While opt-out legislation is a widely recognized approach, it does not necessarily address the challenges of securing donations at the bedside. As a result, many countries with high donor rates have adopted strategies to improve communication with potential donor families when seeking consent or authorization for donation. Additionally, numerous countries have aimed to boost family consent rates by encouraging individuals to clearly express their donation preferences during their lifetime [5].

The success of organ donation policies seems to depend largely on effective communication, backed by strong government commitment and responsiveness to public opinion when needed. It is vital to invest significantly in human resource infrastructure within hospitals, ensuring that staff are prepared to handle sensitive discussions with families and identify potential donors. Furthermore, robust technical support is essential for managing donor registries and transplant waiting lists. These systems must be transparent and accountable, with accurate and verified data being made publicly accessible. Such transparency and accountability are crucial for building public trust, which is essential for the effectiveness of organ donation programs [6].

In Kazakhstan, the legal framework operates on a "presumed consent" model for cadaveric organ donation. Under this approach, tissues or organs can be used for transplantation even if the deceased individual did not explicitly document their consent while alive. However, the deceased's relatives have the right to object to the removal of tissues and organs. This model of presumed consent is also implemented in countries such as Spain, Portugal, France, Belgium, Austria, Russia, and Belarus. Moreover, the concept of presumed consent has been extensively analyzed by philosophers and experts in biomedical ethics [7].

Challenges of Organ Shortage for Transplantation

Recent developments in immunology, tissue engineering, and the use of animal organs in xenotransplantation offer promising solutions to many challenges but also introduce new ethical and medical concerns that need to be carefully considered by both the medical community and society [8].

The most significant challenge in organ transplantation today is the shortage of available organs. To address this issue, several strategies have been adopted to increase the donor pool:

-live organ donations;

-national initiatives to boost deceased organ donations;

-split organ donations;

-paired exchange programs;

-national sharing systems;

-the use of expanded criteria donors [9].

The Republican Center for Transplant Coordination and High-tech Medical Services (referred to as the Coordination Center) was established in 2018, modeled in accordance with the Spanish system. According to the data from the Coordination Center, as of 2023, there are 3,916 patients on the waiting list in need of organ transplantation, including 110 children.

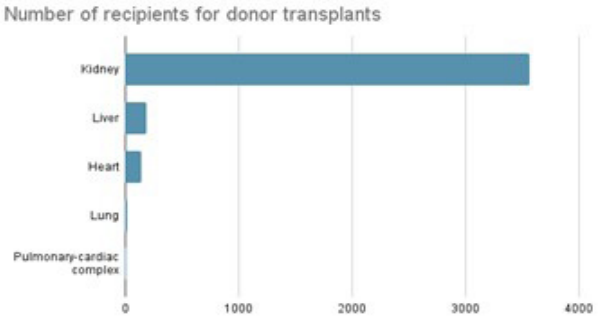


Figure 2 - Number of recipients for donor transplants

Among those, the vast majority of the patients require a kidney transplant, which is 3,565 people (91.2%), followed by 185 patients (4.5%) in need of a liver transplant, 146 (3.7%) - heart transplant, 15 (0.4%) – lung transplant, and 5 (0.1%) are in need of pulmonary-cardiac complex, as shown in Figure 2. Currently, there are 8 transplant centers in the country, staffed by highly qualified specialists and equipped according to current standards. From 2012 to October 2023, 2573 transplant surgeries were conducted, with 424 (17.9%) from deceased donors. Due to a low number of donors and a significant number of refusals for deceased organ donation, the number of organ transplants in Kazakhstan from living donors is much higher than those from deceased donors, accounting for 82.1% and 17.9%, respectively [10].

Comparatively, other countries also have a pressing need for increasing transplant donor number, and Table 2 presents some of the common managements of the discussed issue [31].

Table 2 - Management of the need for transplants, implemented in different countries

Countries	Management of the need for transplants
Asian countries	Increasing numbers of living donor liver transplants (LDLT)
Spain	Uses a soft opt-out system with high transplant rates. Has a network of transplant coordinators to ensure the efficient use of organs.
Austria, Belgium, and Argentina	Implement opt-out systems where organs are available unless an objection is registered.
New Zealand	Uses a mandated choice system, where people decide to be donors when applying for a driver's license.

In Asia, the issue has been effectively managed through a growing number of living-donor liver transplants (LDLT). In contrast, Western countries have not experienced a significant increase in LDLT over the past decade, and the demand for deceased donor liver transplants remains high. Consequently, considerable efforts are being made to expand the pool of available deceased donor organs [11].

The shortage of available organs continues to be a significant challenge in liver transplantation, prompting extensive efforts over the past decade to broaden the pool of deceased donors. Recent improvements include enhanced selection and management of donors following circulatory arrest, the use of hypothermic and normothermic perfusion techniques, reduced reliance on standard immunosuppressive protocols, and the introduction of new immunosuppressive drugs. Additionally, there has been a renewed focus on liver immunology and the effects of antibody-mediated rejection. Collectively, these advancements have contributed to an expanded donor pool and better patient outcomes [11, 12].

Organ Preservation

Static cold storage (SCS) in UW solution, pioneered by Folkert Belzer at the University of Wisconsin around 40 years ago, continues to be the gold standard for organ preservation in transplantation. However, emerging machine perfusion techniques are rapidly becoming a viable alternative. These techniques are particularly beneficial for marginal organs from donation after circulatory death or extended criteria donors. They extend the duration of ex-vivo preservation and allow for objective evaluation of tissue quality and viability [13].

The use of static cold storage has yielded satisfactory outcomes across solid organ transplantation. However, with the growing reliance on organs from extended criteria donors and donations after cardiac death, static cold storage alone is insufficient to achieve the desired post-transplant results for patients. The absence of oxygen, coupled with ongoing anaerobic metabolism that leads to organ damage and ischemia-reperfusion injury (IRI) in recipients, is particularly pronounced and more harmful in these marginal donor organs [14, 15].

The **Organ Care System** (OCS) allows for the ex-vivo preservation of donor organs in a near-physiologic state, significantly extending the transportation time and maintaining organ viability, which is critical for long-distance transplants. Its use has shown promising results in improving post-transplant outcomes, as seen in heart transplant programs in Kazakhstan [32]. However, limitations include the high cost of the system, the need for specialized personnel, and the potential for mechanical complications during transport. Further studies are needed to establish standardized protocols and evaluate the long-term efficacy of OCS compared to traditional cold storage methods.

The table compares key outcomes between heart transplant patients using the Blood Cardioplegia and Custodiol solutions with the Organ Care System (OCS) [32]. Both groups achieved a 100% 30-day survival rate. This table highlights the ethical and practical challenges of organ preservation in heart transplantation.

Both the Blood Cardioplegia and Custodiol groups achieved high survival rates, but differences in metabolic stability, ICU stay, and ECMO duration point to the complexities of maintaining organ viability. The Blood Cardioplegia group showed reduced lactate accumulation and shorter recovery times, suggesting potential

improvements in organ preservation. These results underscore the ongoing ethical challenge of ensuring optimal organ function while minimizing harm, risk, and resource use, emphasizing the need for continued advancements in preservation techniques to enhance transplant outcomes and address the organ shortage crisis effectively.

Table 3 - Characteristics of a current OCS system [32]

Parameter	Blood Cardioplegia Group	Custodiol Group	P-Value
30-day Survival Rate (%)	100	100	N/A
Total Warm Ischemic Time (min)	84.2 ± 28	86.9 ± 8.4	0.001
Ex Vivo Perfusion Time (min)	266.5 ± 86.7	260.4 ± 88.4	0.87
Venous Lactate at Start (mmol/l)	2.2 ± 0.7	3.4 ± 0.8	0.001
Venous Lactate at End (mmol/l)	5.0 ± 1.9	9.2 ± 2.1	0.001
ICU Stay (days)	11.7 ± 10.3	19.6 ± 13.0	0.44
ECMO Duration (hours)	29.5 ± 28.4	78.4 ± 89	0.002

The Definition of Death and Kazakhstan's Legal Framework for Brain and Respiratory Death

According to paragraph 3 of Article 153 of the Code of the Republic of Kazakhstan "On the Health of the People and the Healthcare System," irreversible brain death is defined as the cessation of brain activity due to the death of brain matter, during which artificial measures may be taken to maintain the functions of the organs. Irreversible brain death is confirmed by a medical organization's board based on a set of signs indicating the cessation of central nervous system functions, as well as clinical tests and other diagnostic studies in the manner determined by the authorized body [16].

The procedure for diagnosing brain death is approved by the Order of the Acting Minister of Health of the Republic of Kazakhstan dated October 27, 2020, No. ҚР ДСМ-156/2020 "On Approving the Rules for Confirming Irreversible Brain Death and the Rules for Discontinuing Artificial Measures to Maintain Organ Functions in the Event of Irreversible Brain Death" [17].

To confirm irreversible brain death, the head of the healthcare organization appoints a permanent committee composed of at least three members:

-the committee chair, who is either the head of the healthcare organization or the deputy head for medical affairs;

-a neurologist or neurosurgeon with at least five years of experience in the field;

-an anesthesiologist-resuscitator with at least five years of experience in the specialty.

If special studies are conducted (such as electroencephalography or angiography), the committee includes a specialist in the relevant field with at least five years of experience, who may also be invited from other healthcare organizations on a consultative basis. Specialists involved in organ retrieval and transplantation are not included in the committee [2].

Therefore, improving the efficiency of conducting supplementary tests during the brain death diagnosis process in a timely and professional manner could lead to better outcomes over time, but this is yet to be determined [18].

While the need to define brain death is globally recognized and widely accepted, the methods and responsibilities vary significantly between countries and even among hospitals within the same country. From a legal standpoint, each country or state has its own regulations regarding death, which hospitals use to establish their criteria for determining brain death. As a result, there is considerable variability in how brain death is determined both between and within individual hospitals in the United States and Europe [19, 20].

Miller et al. [21] examined the concept of brain death within Islam, noting that it is recognized as true death by many medical organizations and Islamic scholars, including the Islamic Fiqh Academies of the Organization of the Islamic Conference, the Muslim World League, the Islamic Medical Association of North America, and various legal bodies in Islamic countries. However, there is not unanimous agreement within the Muslim world, with a significant minority adhering only to cardiopulmonary criteria for death.

Truog and Miller [22] aim to shift the discussion on brain death by differentiating between brain death as a biological phenomenon and brain death as a legal status. They argue that brain death does not align with any biologically valid definition of death, a fact that has been known for decades. Despite this, brain death remains accepted as a legal status that allows individuals to be treated as deceased. The analogy between "legally dead" and "legally blind" demonstrates how we can adopt clear legal definitions that do not necessarily match biological reality. This distinction not only clarifies the debate on brain death but also has practical implications. They suggest that recognizing brain death as a social construct rather than a biological fact might facilitate changes that better serve both organ donors and recipients [22].

Challenges Related to Ethical Considerations in Organ Transplantation

Challenges related to ethical considerations in organ transplantation are highly complex due to multiple factors. These include religious beliefs, cultural norms, and societal traditions, which should be considered in addition to the scientific and legal aspects of medical ethics [23].

The ethical and moral concerns in organ transplantation can relate to both living and deceased donors. For living donors, the primary ethical issue is the risk of physical and psychological harm, as surgical intervention can lead to trauma and uncertainty regarding the donor's health post-donation. This raises concerns about the potential violation of the medical principle "do no harm." For deceased donors, ethical challenges include

determining death, obtaining proper consent, and navigating religious beliefs. These issues highlight the complexities and responsibilities involved in organ transplantation [24].

Ethical guidelines for live organ donation differ from those for deceased donors and are closely examined by ethicists, religious groups, and the medical community. Most live organ donations involve kidney transplants, followed by partial liver and lung transplants. The central ethical principle for live donations is to minimize or avoid harm to the donor. Organ donations between family members are generally viewed positively by society, and altruistic donations—those made purely out of a desire to help without financial compensation—are highly valued. Conversely, any form of payment for organs is usually deemed unacceptable. Although some argue that individuals should have the right to sell their organs, the prevailing stance is that this practice is unethical and should be banned. Organ trafficking remains a significant global issue, and modern societies are strongly opposed to it, with international efforts focused on preventing such activities [25, 26].

Ethical and legal considerations in organ removal from both living relatives and non-relatives, consent for organ donation, and how to obtain it, as well as issues related to justice and resource allocation, the fundamental rights of donors and recipients, and adherence to ethical standards in handling organs from brain-dead patients, are all critical aspects of the ethical landscape in organ transplantation. Additionally, advancements in research and new transplant technologies bring further ethical concerns about their use. As ethical debates and critiques are crucial for researchers and policymakers, it is essential to carefully address the various issues in transplantation. With the development of new technologies and scientific advancements in this field, it is important to seek logical solutions that align with Kazakhstan's culture, beliefs, and legal framework.

Discussion

In accordance with WHO Guiding Principle 3, efforts should focus on maximizing the therapeutic potential of donations from deceased individuals while minimizing risks to living donors. It is crucial for communities and healthcare professionals to enhance their understanding of donation and transplantation, as education plays a vital role in the success of deceased donation programs.

Despite the frequent use of materials from deceased donors, living donations remain essential for certain types of transplants or to address the limited supply from deceased donors and meet patient needs. Although living donation involves significant risks to the donor, it continues to be practiced.

Given the ethical and safety risks associated with procuring human materials from both deceased and living donors, as well as the subsequent allogeneic transplantation, health authorities must implement stringent controls and effective oversight to ensure the protection of both donors and recipients. The Guiding Principles stress the importance of providing optimal care for both parties.

Transparent oversight by health authorities is also critical for maintaining public trust in the transplantation system. Moreover, the decision to become a donor is often driven by the hope that it may ultimately benefit the health needs of the donor's family [27].

In the study Doskhan et all Of the 1,176 respondents, 422 participants (36%) agreed to be posthumous donors, while 644 participants (55%) declined. A total of 88 participants (7.6%) were unsure about their decision, and the remaining 22 participants did not answer this question.

Out of the 1,176 respondents, 991 (84%) were aware that organ transplantation is conducted in the country, of which 384 participants (38.7%) agreed to posthumous donation, while 607 participants (61.2%) declined.

Among the 185 participants (16%) who were not informed about organ transplantation in the country, 49 participants (26.5%) agreed to posthumous donation, while 136 participants (73.5%) declined.

In conclusion, it was found that informed participants agreed to posthumous donation in 38.7% of cases, while only 26.5% of uninformed participants agreed to donate [28].

As of January 10, 2024, there are 3,961 people on the organ transplant waiting list in Kazakhstan, including 104 children. From 2012 to 2023, a total of 2,550 organ transplants were performed, comprising 424 organs from deceased donors and 2,126 organs from living donors. Given the large number of people in need and the relatively small number of transplants conducted, the organ recipient registry (waiting list) plays a crucial role.

The waiting list is a registry of patients who are eligible for organ transplants from deceased donors. According to Article 209, Paragraph 6 of the Republic of Kazakhstan Code of July 7, 2020, "On the Health of the People and the Healthcare System," a registry of potential organ (or part of an organ) and tissue (or part of tissue) recipients is established to ensure organ transplantation. The medical information system for donor and recipient accounting matches donor-recipient pairs automatically, based on blood group compatibility (ABO system), urgency status, histocompatibility (HLA typing), and the duration on the unified waiting list.

A critical issue in organ transplantation is the allocation of donor organs from deceased donors. This process involves matching the most suitable donor with recipients, ensuring that donor organs are distributed fairly and equitably among patients while also aiming for the best possible transplant outcomes to optimize patient treatment.

The waiting list is maintained separately for each type of transplantable organ. It is updated on a monthly basis or more frequently if there are changes in the urgency status of recipients. The waiting list information is organized into two main sections: one provides general details applicable to all organ types, while the other contains specific information relevant to each organ type, such as hearts, kidneys, livers, or lungs.

According to GODT data, Kazakhstan was ranked 11th in 2022 for liver transplants (LTx) from living donors per million population (pmp), a drop from 8th place in 2021. Despite this, Kazakhstan's overall pmp rates for liver transplants remain relatively low, with the country ranked 48th out of 91 countries in 2021 and 51st in 2022. However, Kazakhstan is a leading performer in liver transplantation within Central Asia, surpassing other regional countries in pmp rates. Among post-Soviet nations, Kazakhstan held the 5th position in both 2022 and 2021, trailing behind Lithuania, Belarus, Estonia, and Georgia. Generally, Kazakhstan's liver transplantation activities are similar to trends observed in Southeast Asia, marked by a high proportion of transplants from living donors and relatively lower overall pmp rates [29].

Conclusion

The current level of healthcare in Kazakhstan enables the provision of high-tech services in the field of "organ and tissue transplantation" to the population. The state fully funds the costs associated with these operations, including subsequent rehabilitation of recipients and the provision of immunosuppressive medications. However, the development of organ transplantation in Kazakhstan faces significant challenges, primarily due to public resistance and low awareness levels. Organ donation is not feasible without the participation of society; only through public commitment to organ donation can the lives of terminally ill individuals be saved. Additionally, there is low engagement among healthcare professionals in donor hospitals.

The specifics of organ donation require addressing a number of complex moral, ethical, and legal issues, as it lies at the intersection of life and death, simultaneously affecting the interests of both deceased and living individuals. In this context, changing the attitudes of the medical community, particularly the staff of intensive care units, towards the challenges of organ donation is crucial for the advancement of transplantation in Kazakhstan.

Conflict of interest. The authors declare that they have no confict of interest.

Acknowledgements. None

Financing. This research has been funded by the Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant title: Non-invasive methods for diagnosis of transplant rejection as a predictor of long-term graft survival, Grant No. BR21882206).

Author contributions. Conceptualization – B.A., As.A. and P.Y.; Methodology – B.A., As.A. and S.V.; Validation and Formal analysis – B.A.; Investigation and Data Curation – As.A, D.G., S.V.; Writing - Original Draft – B.A.; Writing - Review & Editing - As.A, D.G., S.V. and P.Y.; Project administration – Supervision and Funding acquisition – P.Y.

References

1. World Health Organization. Available from URL: https://www.who.int/health-topics/transplantation#tab=tab_1

2. Beyar R. Challenges in organ transplantation. Rambam Maimonides medical journal. 2011; 2(2). [Crossref]

3. Molina-Pérez A., Rodríguez-Arias D., Delgado-Rodríguez J., Morgan M. et al. Public knowledge and attitudes towards consent policies for organ donation in Europe: A systematic review. Transplantation Reviews. 2018. [Crossref]

4. Lewis A., Koukoura A., Tsianos G.I., Gargavanis A.A. et al. Organ donation in the US and Europe: The supply vs demand imbalance. Transplant Rev (Orlando). 2021; 35(2): 100585. [Crossref]

5. Etheredge H.R. Assessing global organ donation policies: opt-in vs opt-out. Risk management and healthcare policy. 2021; 1985-1998. [Crossref]

6. Акимова Н.М. Некоторые вопросы правового мониторинга Кодекса РК «О здоровье народа и системе здравоохранения» // Вестник Института законодательства РК. - 2018. - №3(52). 108-113. [Google Scholar]

Akimova N.M. Nekotory`e voprosy` pravovogo monitoringa Kodeksa RK «O zdorov`e naroda i sisteme zdravooxraneniya» (Some issues of legal monitoring of the Code of the Republic of Kazakhstan "On the Health of the people and the healthcare system") [in Russian]. Vestnik Instituta zakonodatel`stva RK. 2018; №3(52): 108-113. [Google Scholar]

7. Abouna G.M. Ethical issues in organ transplantation. Medical Principles and Practice. 2003; 12(1); 54-69. [Crossref]

8. Saidi R.F., Kenari S.H. Challenges of organ shortage for transplantation: solutions and opportunities. International journal of organ transplantation medicine. 2014; 5(3): 87. [Google Scholar]

9. Пя Ю., Абдиоразова А., Алтынова С., Даниярова Г. и др. Трансплантация паренхиматозных органов в Казахстане: обзор текущей ситуации и вызовов // Журнал развития здравоохранения. - 2024. - №1(55). - 59-65. [Google Scholar]

Pya Yu., Abdiorazova A., Alty`nova S., Daniyarova G. i dr. Transplantaciya parenximatozny`x organov v Kazaxstane: obzor tekushhej situacii i vy`zovov (Parenchymal organ transplantation in Kazakhstan: an overview of the current situation and challenges) [in Russian]. Zhurnal razvitiya zdravooxraneniya. 2024; 1(55): 59-65. [Google Scholar]

10. Jadlowiec C.C., Taner T. Liver transplantation: current status and challenges. World journal of gastroenterology. 2016; 22(18): 4438. [Crossref]

11. Guarrera J.V., Henry S.D., Samstein B., Reznik E. et al. Hypothermic machine preservation facilitates successful transplantation of "orphan" extended criteria donor livers. American Journal of Transplantation. 2015; 15(1): 161-169. [Crossref]

12. Kupiec-Weglinski J.W. Grand Challenges in Organ Transplantation. Front. Transplant. 2022; 1: 897679. [Google Scholar]

13. Collard C.D., Gelman S. Pathophysiology, clinical manifestations, and prevention of ischemia-reperfusion injury. Anesthesiology. 2001; 94: 1133-1138. [Crossref]

14. Resch T., Cardini B., Oberhuber R., Weissenbacher A. et al. Transplanting marginal organs in the era of modern machine perfusion and advanced organ monitoring. Frontiers in Immunology. 2020; 11: 631. [Crossref]

15. О здоровье народа и системе здравоохранения». Кодекс Республики Казахстан: от 07 июля 2020 года № 360-VI ЗРК. Режим доступа: https://zdravunion.kz/wp-content/uploads/2021/05/Kodeks-RK-ot-07.07.2020-360-VI-O-zdorove-naroda-i-sisteme-zdravoohraneniya.pdf

O zdorov`e naroda i sisteme zdravooxraneniya». Kodeks Respubliki Kazaxstan (On the health of the people and the healthcare system. The Code of the Republic of Kazakhstan) [in Russian]: ot 07 iyulya 2020 goda № 360-VI ZRK. Rezhim dostupa: https://zdravunion.kz/wp-content/uploads/2021/05/Kodeks-RK-ot-07.07.2020-360-VI-O-zdorove-naroda-i-sisteme-zdravoohraneniya.pdf

16. Об утверждении правил констатации необратимой гибели головного мозга и правил прекращения искусственных мер по поддержанию функций органов при необратимой гибели головного мозга. Приказ и.о. Министра здравоохранения Республики Казахстан: от 27 октября 2020 года №ҚР ДСМ-156/2020. Режим доступа: https://adilet.zan.kz/rus/docs/V2000021531

Ob utverzhdenii pravil konstatacii neobratimoj gibeli golovnogo mozga i pravil prekrashheniya iskusstvenny`x mer po podderzhaniyu funkcij organov pri neobratimoj gibeli golovnogo mozga. Prikaz i.o. Ministra zdravooxraneniya Respubliki

Kazaxstan (On the approval of the rules for the establishment of irreversible brain death and the rules for the termination of artificial measures to maintain organ functions in case of irreversible brain death. Order of the Acting Minister of Health of the Republic of Kazakhstan) [in Russian]: ot 27 oktyabrya 2020 goda №ҚR DSM-156/2020. Rezhim dostupa: https://adilet.zan.kz/eng/docs/V2000021531

17. Beyar R. Challenges in organ transplantation. Rambam Maimonides Med J. 2011; 2(2): e0049. [Crossref]

18. Wijdicks E.F. Brain death worldwide: accepted fact but no global consensus in diagnostic criteria. Neurology. 2002; 58: 20-25. [Crossref]

19. Powner D.J., Hernandez M., Rives T.E. Variability among hospital policies for determining brain death in adults. Crit Care Med. 2004; 32: 1284-1288. [Crossref]

20. Miller A.C., Ziad-Miller A., Elamin E.M. Brain death and Islam: The interface of religion, culture, history, law, and modern medicine. Chest. 2014; 146: 1092-1101. [Crossref]

21. Truog R.D., Miller F.G. Changing the conversation about brain death. Am J Bioeth. 2014; 14(8): 9-14. [Crossref]

22. Kiani M., Abbasi M., Ahmadi M., Salehi B. Organ transplantation in Iran; current state and challenges with a view on ethical consideration. J Clin Med. 2018; 7(3): 45. [Google Scholar]

23. Мелкумян Э.Х. Морально-этические аспекты трансплантологии //Форум молодых ученых. - 2019. - № 7(35). - С. 182-187. [Google Scholar]

Melkumyan E`.X. Moral`no-e`ticheskie aspekty` transplantologii. Forum molody`x ucheny`x (Moral and ethical aspects of transplantation. Forum of Young Scientists) [in Russian]. 2019; (7 (35)): 182-187. [Google Scholar]

24. Abboud O., Abbud-Filho M., Abdramanov K., Abdulla S. et al. The Declaration of Istanbul on Organ Trafficking and Transplant Tourism. Clin J Am Soc Nephrol. 2008; 3:1227-1231. [Google Scholar]

25. Досхан М.О., Кабдекенова З.Б., Мукажанов Д.Е., Таскеев Б. и др. Изучение общественного мнения о посмертном донорстве в Республике Казахстан //Медицина. 2020. - 9-10(219-220). - 2-10. [Google Scholar]

Doskhan M.O., Kabdekenova Z.B., Mukazhanov D. E., Taskeev B. et al. Study of public opinion on post-mortem donation in the republic of Kazakhstan (The study of public opinion on posthumous donation in the Republic of Kazakhstan) [in Russian]. Medicina. 2020; 9,10(219,220): 2-10. [Google Scholar]

26. Semenova Y., Beyembetova A., Shaisultanova S., Asanova A. et al. Evaluation of liver transplantation services in Kazakhstan from 2012 to 2023. Sci Rep. 2024; 14: 9304. [Crossref]

27. da Silva A.M., Benites P.T., Zulin M.E.G., Júnior M. A.F. et al. Global legislation regulating the donation, procurement and distribution processes of organs and tissues from deceased donors for transplants: A scoping review. Heliyon. 2024. [Google Scholar]

28. Sterri A.B., Regmi S., Harris J. Ethical solutions to the problem of organ shortage. Cambridge Q Healthc Ethics. 2022; 31(3): 297-309. [Google Scholar]

29. Калиев Р.Б., Бекбоссынов С.Т., Лесбеков Т.Д., Смагулов Н.К. и др. Новый способ сохранения донорского сердца ex vivo с использованием кардиологии и кондиционирования крови //Клиническая и экспериментальная хирургия. - 2017. - Т. 5. - № 3 (17). - С. 54-59. [Google Scholar]

Kaliyev R.B., Bekbossynov S.T., Lesbekov T.D., Smagulov N.K. et al. Novel method for ex vivo preservation of donor heart using blood cardioplegia and conditioning (A new way to preserve an ex vivo donor heart using cardioplegia and blood conditioning) [in Russian]. Klinicheskaya i e`ksperimental`naya xirurgiya. 2017; 5(3(17)): 54-59. [Google Scholar]

30. National Scientific Cardiac Surgery Center. Development and implementation of innovative technologies in cardiac surgery and cardiology. Unpublished manuscript. 2023.

31. Barış M., Lim X., Almonte M., Shaw D., Brierley J., et al. Ethics of Procuring and Using Organs or Tissue from Infants and Newborns for Transplantation, Research, or Commercial Purposes: Protocol for a Bioethics Scoping Review. Wellcome Open Research, 2024; 9: 717. [Google Scholar]

32. Kaliyev R. B., Bekbossynov S.T., Lesbekov T.D., Smagulov N. et al. Novel method for ex vivo preservation of donor heart using blood cardioplegia and conditioning. Clinical and Experimental Surgery. 2017; 5: 54-59. [Google Scholar]

33. Windecker S., Gilard M., Achenbach S., Cribier A., et al. Device innovation in cardiovascular medicine: a report from the European Society of Cardiology Cardiovascular Round Table. European Heart Journal, 2024; 45(13): 1104-1115. [Crossref]

Органдарды трансплантациялаудағы этикалық сұрақтар. Әдебиетке шолу

Даниярова Г.Д. [1], Асанова А.А. [2], Болатов А.К. [3,4], Сазонов В.Г. [5], Пя Ю.В. [6], Ақжолова К.Т. [7]

[1] Ғылыми хатшы, University Medical Center, Астана, Қазақстан. E-mail: daniyarova.g@umc.org.kz

[2] Ғылым департаментінің бас менеджері, University Medical Center, Астана, Қазақстан. E-mail: asanova.aruzhan@umc.org.kz

[3] Ғылыми қызметкер, University Medical Center, Астана, Қазақстан. E-mail: bolatovaidos@gmail.com

[4] PhD-студент, Шэньчжэнь университеті, Шэньчжэнь, Қытай. E-mail: bolatovaidos@gmail.com

[5] Ғылыми қызметкер, University Medical Center, Астана, Қазақстан. E-mail: dr.sazonov@gmail.com

[6] Басқарма төрағасы, University Medical Center, Астана, Қазақстан. E-mail: yuriy.pya@umc.org.kz

[7] Ғылыми қызметкер, University Medical Center, Астана, Қазақстан. E-mail: kamila.akzholova@nu.edu.kz

Түйіндеме

Соңғы 50 жылда трансплантация әлемде кеңінен табысты практикаға айналды. Алайда, елдер арасында донорлық органдарға қол жетімділік, сондай-ақ адам жасушалары, тіндері мен органдарын донорлау және трансплантациялау қауіпсіздігі, сапасы және тиімділігінде айтарлықтай айырмашылықтар бар.

Осы шолудың мақсаты — Қазақстандағы орган трансплантациясының мәселелерін әлемдік контексте анықтау.

Іздеу электронды дерекқорларды пайдалана отырып жүргізілді, әсіресе PubMed, Google Scholar, Medline және Scopus. Айқындаған зерттеулердің тақырыптары мен аннотациялары таңдалды, толық мәтінді мақалалар сәйкестік үшін қаралды.

Іздеуде келесі түйін сөздер қолданылды: қатты органдар трансплантациясы, трансплантациядағы этика, органдарды сақтау және трансплантация мәселелері. Іздеу тереңдігі — 10 жыл.

Орган донорлығына тән ерекшеліктер бірнеше күрделі моральдық, этикалық және құқықтық мәселелерді шешуді қажет етеді, себебі бұл өмір мен өлім арасындағы шекарада орналасып, қайтыс болған және тірі адамдардың мүдделерін қамтиды. Осы контексте, медициналық қауымдастықтың, әсіресе қарқынды терапия бөлімшелерінің қызметкерлерінің орган донорлығына қатысты көзқарасын өзгерту Қазақстанда трансплантацияның дамуы үшін маңызды.

Түйін сөздер: Орган трансплантациясы, тірі донорлар, трансплантат алушылар, органдарды сақтау шешімдері, трансплантациядағы этика.

Этические аспекты трансплантации органов. Литературный обзор

Даниярова Г.Д. [1], Асанова А.А. [2], Болатов А.К. [3,4], Сазонов В.Г. [5], Пя Ю.В. [6], Акжолова К.Т. [7]

[1] *Ученый секретарь, University Medical Center, Астана, Казахстан. E-mail: daniyarova.g@umc.org.kz*
[2] *Главный менеджер департамент науки, University Medical Center, Астана, Қазақстан. E-mail: asanova.aruzhan@umc.org.kz*
[3] *Научный сотрудник, University Medical Center, Астана, Казахстан. E-mail: bolatovaidos@gmail.com*
[4] *PhD-студент, Шэньчжэньский Университет, Шэньчжэнь, Китай. E-mail: bolatovaidos@gmail.com*
[5] *Научный сотрудник, University Medical Center, Астана, Казахстан. E-mail: dr.sazonov@gmail.com*
[6] *Председатель Правления, University Medical Center, Астана, Казахстан. E-mail: yuriy.pya@umc.org.kz*
[7] *Научный сотрудник, University Medical Center, Астана, Казахстан. E-mail: kamila.akzholova@nu.edu.kz*

Резюме

За последние 50 лет трансплантация стала широко успешной практикой по всему миру. Однако существуют значительные различия между странами в доступе к подходящим трансплантатам, а также в безопасности, качестве и эффективности донорства и трансплантации человеческих клеток, тканей и органов.

Цель данного обзора — определить проблемы трансплантации органов в Казахстане в мировом контексте.

Поиск проводился с использованием электронных баз данных, таких как PubMed, Google Scholar, Medline и Scopus. Были отобраны заголовки и аннотации выявленных исследований, и полнотекстовые статьи были рассмотрены на предмет соответствия.

В поиске использовались следующие ключевые слова: трансплантация твердых органов, этика в трансплантации органов, сохранение органов и проблемы трансплантации органов. Глубина поиска — 10 лет.

Специфика донорства органов требует решения ряда сложных моральных, этических и юридических вопросов, так как она находится на пересечении жизни и смерти, затрагивая интересы как умерших, так и живых лиц. В этом контексте изменение отношения медицинского сообщества, особенно сотрудников отделений интенсивной терапии, к проблемам донорства органов имеет решающее значение для развития трансплантации в Казахстане.

Ключевые слова: Трансплантация органов, живые доноры, реципиенты трансплантатов, решения по сохранению органов, этика в трансплантации органов.

https://doi.org/10.32921/2225-9929-2024-4-59-59-73
УДК 616-089.844; 616.15-005
МРНТИ 76.01;76.29.46

Письмо редактору

Гендерные барьеры в доступе к услугам профилактики и лечения ВИЧ для трансгендерных женщин в 15 странах Западных Балкан, Восточной Европы, Южного Кавказа и Центральной Азии

Яна Кирей-Ситникова [1], Эртаева А. [2], Дрндаревска Д. [2], Авертисян А.[2], Барац Дж. М. [2], Мируашвили Л. [2], Сулейманова Л.[2], Гулбани Л.[2], Озтурк Н.[2], Янкович Н.Ю.[2], Ковтун О.[2], Ходжай О.[2], Кали С.В.[2], Мюлер В.[2], Орсеков Д.[3]

[1] *Консультантка по исследованиям, Евразийская коалиция по здоровью, правам, гендерному и сексуальному многообразию, Таллинн, Эстония. E-mail: yana.kirey.sitnikova@gmail.com*

[2] *Страновой эксперт, Евразийская коалиция по здоровью, правам, гендерному и сексуальному многообразию, Таллинн, Эстония*

[3] *Координатор адвокации, Евразийская коалиция по здоровью, правам, гендерному и сексуальному многообразию, Таллинн, Эстония*

Резюме

Трансгендерные женщины (ТГЖ) являются одной из ключевых групп, подверженных повышенному риску заражения ВИЧ. Знания о социально-экономических и правовых факторах риска для этой группы распределены географически неравномерно.

Целью исследования было изучить социально-экономические и правовые факторы риска для ТГЖ в 15 малоизученных странах Западных Балкан (Албания, Босния и Герцеговина (БиГ), Северная Македония, Сербия, Черногория), Восточной Европы (Беларусь, Молдова, Украина), Южного Кавказа (Азербайджан, Армения, Грузия) и Центральной Азии (Казахстан, Кыргызстан, Таджикистан, Узбекистан).

Методы. Разработан опросник, за основу которого взят инструмент гендерной оценки ЮНЭЙДС. Опросник заполнен страновыми экспертами на основе анализа научных публикаций, законов и официальных документов, отчетов неправительственных организаций и публикаций в СМИ.

Результаты. Биоповеденческие исследования, включающие ТГЖ, проведены лишь в Азербайджане, Армении, Кыргызстане и Украине. Численность ТГЖ оценивалась в диапазоне от 0,01% до 0,04%. Распространенность ВИЧ среди ТГЖ — в диапазоне от 1,9% до 39,5%. Стигма и дискриминация в отношении ТГЖ, возникающая на фоне социокультурных норм (мизогиния, одобрение насилия, гомофобия, трансфобия, негативное отношение к секс-работе), представляют собой барьер в доступе к услугам профилактики и лечения ВИЧ.

Выводы. Социокультурные нормы находят отражение в законах и одновременно с этим подкрепляются существующими законами. В 10 из 15 стран имеются процедуры изменения гражданского пола: в шести они прописаны подробно, в трёх требуется проведение гормональной терапии, в шести — операций. Только в двух странах гендерно-аффирмативные процедуры покрываются за счёт системы медицинского страхования. В большинстве стран ТГЖ не выделены в качестве ключевой группы и объединяются с другими группами, такими как мужчины, занимающиеся сексом с мужчинами, или секс-работники.

Ключевые слова: ВИЧ, трансгендерность, транссексуальность, социально-экономические детерминанты здоровья.

Corresponding author: Yana Kirey-Sitnikova, research consultant, Eurasian Coalition on Health, Rights, Gender and Sexual Diversity, Tallinn, Estonia.
Postal code: 10416
Address: Tööstuse tn 48, Tallinn, Estonia
E-mail: yana.kirey.sitnikova@gmail.com

J Health Dev 2024; 4 (59): 59-73
Recieved: 17-11-2024
Accepted : 21-12-2024

Введение

Исходы в сфере здоровья связаны между собой сложными причинно-следственными связями. Исходы, которые мы наблюдаем в ВИЧ, такие как риски инфицирования, приверженность профилактике и лечению, вызваны социальными и сексуальными практиками (незащищенный секс, множественные половые партнеры, употребление психоактивных веществ (ПАВ), дискриминация), которые, в свою очередь, вызваны социокультурными, экономическими и юридическими факторами. Для того, чтобы увидеть полную картину, необходимо разобрать весь спектр причин, воздействие на которые может остановить эпидемию ВИЧ. Целью настоящей работы является изучение цепочки факторов, повышающих риски заражения ВИЧ и снижающих доступность медицинской помощи в связи с ВИЧ, для трансгендерных людей (ТГЛ) — одной из пяти ключевых групп, выделенных ЮНЭЙДС, — с уделением особого внимания трансгендерным женщинам (ТГЖ), для которых, согласно некоторым оценкам, риск заражения ВИЧ в 49 раз превышает риск для общей популяции [1]. Ранее на русском языке был опубликован обзор англоязычных исследований на эту тему [2].

В этой публикации мы сосредоточимся на 15 малоизученных странах Западных Балкан (Албания, Босния и Герцеговина (БиГ), Северная Македония, Сербия, Черногория), Восточной Европы (Беларусь, Молдова, Украина), Южного Кавказа (Азербайджан, Армения, Грузия) и Центральной Азии (Казахстан, Кыргызстан, Таджикистан, Узбекистан).

Материалы и методы

Для проведения исследования разработан опросник, за основу которого взят Инструмент гендерной оценки, разработанный ЮНЭЙДС для оценки гендерных барьеров в связи с ВИЧ [3]. Евразийская Женская сеть по СПИДу адаптировала Инструмент для трёх ключевых групп: женщин, живущих с ВИЧ, секс-работниц и женщин, употребляющих ПАВ. Опросник Женской сети был далее адаптирован нами для ТГЖ и роздан для заполнения экспертам из указанных 15 стран, большинство из которых являются ТГЖ со значительным опытом работы в сфере ВИЧ. Отвечая на вопросы опросника, эксперты изучали все доступные источники на разных языках, включая научные публикации, законы и официальные документы, отчёты неправительственных организаций (НПО) и (при отсутствии других источников) публикации в СМИ. Обязательным условием являлось предоставление ссылок на достоверные источники. При невозможности найти данные конкретно по ТГЖ допускались ссылки на исследования для всей группы ТГЛ. 15 заполненных опросников были представлены в январе 2023 года и сведены воедино ведущей исследовательницей для создания настоящей публикации в июле того же года. С момента сбора данных в законодательствах ряда стран произошли изменения. В данном тексте приводятся данные на январь 2023 года; в случаях, когда нам стало известно об изменениях, информация приводится в сносках.

Результаты

Результаты описаны в порядке от исходов к вызвавшим их причинам. В первом разделе приводятся статистические данные о распространенности ВИЧ среди ТГЖ, а также приверженности профилактике и лечению ВИЧ. Во втором разделе обсуждаются факторы, повышающие риски инфицирования и снижающие доступность профилактики и лечения. В третьем и четвертом разделах соответственно обсуждаются социальные нормы и законы (политики, правила), воздействующие на эти факторы. Наконец, последний раздел содержит информацию о комплексном ответе на ВИЧ.

а.Данные о распространенности ВИЧ, профилактики и лечении

Биоповеденческие исследования с участием ТГЖ были проведены в Азербайджане, Армении, Кыргызстане и Украине, что определяет доступность данных по этим странам (Таблица 1). Проведенная недавно в Грузии количественная оценка ТГЛ, к сожалению, не содержит разбивки по гендерным идентичностям, что делает невозможным оценить численность ТГЖ [4]. В Грузии и Кыргызстане проводились опросы, затрагивающие темы, связанные с ВИЧ. Отсутствуют данные по Балканам, Беларуси, Молдове, Казахстану, Таджикистану и Узбекистану.

Численность ТГЖ оценивалась в диапазоне от 0.01% (Украина) до 0,04% (Армения) от общей численности женщин. Для сравнения, международные исследования показывают цифры от 0,00017% до 0.599% [5]. Распространенность ВИЧ среди ТГЖ составляла от 1,9% до 39,5% (международные данные — 19,1% [1]). Охват ТГЖ программами профилактики ВИЧ составлял от 21,0% до 97,7%. В Украине 3% ТГЖ принимали доконтактную профилактику (ДКП) и 1% принимали постконтактную профилактику (ПКП) [6]. От 72,0% до 87,0% ТГЖ знали о своем ВИЧ-статусе. При проведении тестирования в Украине было выявлено 17 ВИЧ-положительных ТГЖ (из 873, то есть 1,9%), только 7 из которых (41.1%) знали о своем статусе [6]. Только по Армении получены данные о проценте ТГЖ, живущих с ВИЧ, которые получают антиретровирусную терапию (АРВТ), — 3 из 4 (75,0%) [7]. Учитывая небольшое число ТГЖ в целом и значительно меньшее число ТГЖ, живущих с ВИЧ, построить полноценный каскад не представляется возможным. Значительный разброс результатов является очередным подтверждением низкого качества эпидемиологических исследований в сфере трансгендерного здоровья, отличающихся непрезентативными и высокогетерогенными выборками [8]. Поскольку все упомянутые исследования проведены на базе НПО, в них с большей вероятностью попадали ТГЖ, обращавшиеся в эти НПО, например, за бесплатными презервативами или тестами на ВИЧ. С другой стороны, эти исследования могли не охватывать ТГЖ, живущих за пределами крупных городов и меньше пользующихся интернетом.

Таблица 1 - Распространенность ВИЧ, использования средств профилактики, лечения и факторов, повышающих риски инфицирования

Страна/Вопросы	1*	2*	3*	4*	5*	6*	7*	8*	9*	10*
Балканы										
Албания	-	-	-	-	-	-	-	-	-	-
БиГ	-	-	-	-	-	-	-	-	-	-
С. Македония	-	-	-	-	-	-	-	-	-	-
Сербия	-	-	-	-	-	-	-	-	-	-
Черногория	-	-	-	-	-	-	-	-	-	-
Восточная Европа										
Беларусь	-	-	-	-	-	-	-	-	-	-
Молдова	-	-	-	-	-	-	-	-	-	-
Украина	4293 (0,01%) [9]	-	1,9% [6]	72% среди всех, 41,1% среди ВИЧ+[6]	31% неинъекц, 2% инъекц [6]	20% [6]	76% [6]	-	21% [6]	-
Центральная Азия										
Казахстан	-	-	-	-	-	-	-	-	-	-
Кыргызстан	-	-	28.8% [10]-38% [11]	-	-	70% [11]	-	69,7% [10]	-	-
Таджикистан	-	-	-	-	-	-	-	-	-	-
Узбекистан	-	-	-	-	-	-	-	-	-	-
Южный Кавказ										
Азербайджан	-	-	5,7% [12]	87,0% [12]	58,0% [12]	92,0% [12]	73,7% [12]	22,3% [12]	97,7% [12]	-
Армения	1015	0,5% [1]	2,5% [13]	-	40,0% [13]	85,0% [13]	87,7% [13]	3,5% [13]	-	75% [7]
Грузия	-	-	39.5%[14]	-	31.9%	76.6%[14]	87.2%[14]	-	-	-

** Вопросы: 1. Какой процент составляют ТГЖ в общей популяции в вашей стране? 2. Какой процент составляют ТГЖ в общей популяции людей, живущих с ВИЧ? 3. Какова распространенность ВИЧ среди ТГЖ? 4. Сколько ТГЖ знают свой ВИЧ-статус? 5. Сколько ТГЖ употребляют наркотики? 6. Сколько ТГЖ занимаются секс-работой? 7. Сколько ТГЖ сообщили об использовании презерватива во время последнего полового акта? 8. Сколько ТГЖ подвергались физическому или сексуальному насилию со стороны интимного партнера за последние 12 месяцев? 9. Каков охват программами профилактики ВИЧ среди ТГЖ? 10. Сколько ТГЖ, живущих с ВИЧ, получили АРВТ за последние 12 месяцев?*

Данные о факторах, повышающих риски инфицирования ВИЧ

К факторам, повышающим риски инфицирования ВИЧ, можно отнести употребление ПАВ, занятие секс-работой, неиспользование презерватива, насилие, стигму и дискриминацию, а также проблемы в сфере ментального здоровья. Ниже будут рассмотрены данные по 15 странам для каждого из факторов. Статистические данные для этого раздела представлены в Таблице 1 (колонки 5–8).

Употребление ПАВ. Распространённость среди ТГЖ варьировала в широком диапазоне в зависимости от типа ПАВ — инъекционные (2%) или неинъекционные (31%). Суммарная цифра достигала 58% (международные данные: от 4,5% до 29,2% [15]).

Занятие секс-работой. От 20% до 92% ТГЖ сообщили о занятии секс-работой (для сравнения, в США: 37.9% [16]). Занятие секс-работой является значимым предиктором ВИЧ-положительного статуса: например, в украинском исследовании среди ТГЖ, имевших опыт секс-работы, распространенность ВИЧ в 6 раз превышала соответствующий показатель для ТГЖ, не имевших такого опыта [6].

Использование презерватива. От 73,7% до 87,2% сообщили об использовании презерватива во время последнего полового акта.

Насилие в отношении ТГЖ. Насилие (физическое, сексуальное, психологическое) входит в число факторов, ухудшающих ментальное здоровье и способствующих занятию сексом по принуждению, что ведет к повышенным рискам инфицирования ВИЧ. От 3,5% до 69,7% респонденток сообщили о физическом или сексуальном насилии со стороны интимного партнера за последние 12 месяцев. В Грузии 38,3% ТГЖ сообщили о физическом насилии [14]. В отчете биоповеденческого исследования в Украине [6] представлены показатели о распространенности опыта насилия среди ТГЖ за последние 12 месяцев.

В ситуации недостатка и плохого качества статистических данных следует упомянуть об отдельных случаях, сообщенных в СМИ или задокументированных НПО, которые проливают свет на обстоятельства насилия. Так, в Молдове ТГЖ покончила с собой после того, как была избита одноклассниками [17]. В Азербайджане ТГЖ подверглась нападению и погибла от полученных травм [18]. В Армении задокументированы несколько случаев насилия. В 2022 году ТГЖ была избита на улице Ваназдора, а прибывшие на место полицейские оскорбляли ее, прежде чем забрать в отделение [19]. В том же году в Ереване ТГЖ была избита незнакомцем у себя дома [20]. В Грузии 17-летняя ТГЖ подверглась нападению двух неизвестных, которые были отпущены в зале суда под небольшой залог; ещё две ТГЖ подверглись нападению мужчины с ножом, в результате чего одна была убита, вторая ранена [21].

Стигма и дискриминация. Отчет биоповеденческого исследования в Украине [6] содержит информацию о распространенности тех или иных ситуаций стигмы, дискриминации и социальной изоляции ТГЖ, однако без уточнения субъекта таких действий и процентных показателей. По 18 ситуациям средний показатель в баллах находится в диапазоне от 2,2 до 3, что дает основание предполагать о том,

что предложенные участницам ситуации стигмы и дискриминации не были массово распространены. В Казахстане ТГЛ сталкивались со следующими видами дискриминации: 30,4% выгоняли или не брали на работу, 15,9% — отказывали в приеме заявления в полиции, 15,2% — отказывали в получении медицинской помощи, 9,4% — лишали жилья, 8,7% — выгоняли или не брали на учебу [22].

Стигматизация и дискриминация в системе здравоохранения являются значительным барьером для охвата ТГЖ программами в сфере ВИЧ. В Казахстане в качестве причин, останавливающих от прохождения тестирования на ВИЧ, трансгендерные респонденты (включая ТГЖ) назвали страх столкнуться с трансфобией (в частности, использованием неверного грамматического рода и имени при обращении, некорректными вопросами) (53%), нежелание предъявлять документы, которые не соответствуют гендерной идентичности (53%) и нежелание раскрывать свою принадлежность к ТГЛ (39%) [23]. В Азербайджане 49,3% ТГЖ не обращались за медицинской помощью только один раз в жизни из-за своей сексуальной ориентации; 18,3% опрошенных сказали, что такие случаи были неоднократно; ещё 30% ответили, что никогда не сталкивались с такой ситуацией [12]. 63% респондентов из Центральной Азии отметили страх несоблюдения конфиденциальности в качестве барьера для сдачи тестов на ВИЧ/СПИД или получения информационной поддержки в этих вопросах [24].

Ментальное здоровье. По данным биоповеденческого исследования в Украине [6], депрессивные состояния были обнаружены у 40% ТГЖ (по методике CESD-10), причем этот показатель был выше среди ТГЖ в возрасте до 25 лет. Ментальные проблемы возникают у ТГЛ в связи с неприятием со стороны близких, невозможностью сменить документы, страхом потерять работу [24].

с.Социокультурные нормы

Факторы, повышающие риски инфицирования ВИЧ, которые описаны в предыдущем разделе, порождаются социокультурными нормами. Так, ТГЖ могут сталкиваться с предвзятым отношением в связи различными социокультурными установками, включающими мизогинию, толерантность к насилию, гомофобию, трансфобию, негативное отношение к секс-работе и немоногамности.

Мизогиния и одобрение насилия. 5,7% сербских подростков (11% среди мальчиков, 3% среди девочек) считают, что мужчина имеет право ударить женщину в некоторых ситуациях [25]. Более половины женщин (52,2%) в Албании ответили, что все или большинство людей в их окружении считают насилие между мужчиной и женщиной частным делом, в которое посторонние не должны вмешиваться [26]. Каждый четвёртый украинец (25%) считает, что физическое насилие мужчины против женщины можно оправдать, 17% населения считают, что ради сохранения семьи женщина должна терпеть насилие со стороны мужчины [27].

Гомофобия. 42% опрошенных в Албании считают, что гомосексуальность следует лечить [28]. 59% респондентов в Боснии заявили, что лесбиянки, геи, бисексуалы и трансгендерные люди (ЛГБТ) — больные люди [29]. Большинство опрошенных в Северной Македонии не хотят, чтобы их соседями были наркопотребители (91,0%), люди, страдающие алкоголизмом (88,6%), бывшие преступники (82,2%), ЛГБТ (81,0%), люди, живущие с ВИЧ (ЛЖВ) (77,2%), и мигранты (71.2%) [30]. 20.3% опрошенных в Черногории заявили, что ЛГБТ не лучше преступников, 29,0% считают, что гомосексуальность необходимо лечить; напротив, 26.9% утверждали, что ЛГБТ должны иметь те же права, что и остальные граждане [31]. В Кыргызстане негативно к ЛГБТ относятся 43% респондентов, 11% — нейтрально, 7% — положительно, ещё 22% не знают, кто это такие [32]. По данным всеукраинского опроса, негативно относятся к ЛГБТ 38% опрошенных, нейтрально — 45%, положительно — 13%; 64% опрошенных согласны с тем, что ЛГБТ должны иметь такие же права как и другие граждане, преимущественно эту мысль разделяют более молодые, образованные и состоятельные респонденты, а также жители городов [33]. 31% респондентов полностью поддерживают равенство прав для гомосексуальных людей, а 23% — скорее поддерживают, чем не поддерживают; однозначно не поддерживают равные права для ЛГБТ 19% респондентов, а 8% — скорее не поддерживают; 10% занимают нейтральную позицию, а 7% не определились в своём отношении [34].

Трансфобия. 27% опрошенных в Сербии считают, что ТГЛ совершают грех, 44% — что трансгендерность является болезнью [35]. Такие убеждения приводят к принудительной конверсионной терапии (попыткам изменить сексуальную ориентацию или гендерную идентичность человека). Например, респондентка из Беларуси рассказывает: «Родители сами записали меня к сексологу, когда мне было 16. Видимо, они запаниковали, когда нашли в моей комнате оральные контрацептивы... Спустя несколько месяцев меня отвезли в психушку, надели смирительную рубашку, забрали все колющие и режущие предметы, положили в палату с мужчинами» [36]. Распространено мнение о том, что трансгендерность навязывается окружающими. Например, известный сексолог в Беларуси рассказывает: «Подростки становятся жертвами своеобразного "зомбирования", включаются в этот процесс, когда их фактически обрабатывают вплоть до схем гормональной коррекции пола» [37]. Всего 45.8% ТГЖ в Беларуси рассказали о негативном отношении к ТГЛ, только 16.7% отметили понимание окружающих [38]. Негативное отношение к ТГЛ может возникать на религиозной почве. Так, в 2016 году Духовное управление мусульман Казахстана выпустило фетву против операций по смене пола, назвав их «великим грехом», за который последует наказание [39]. Проведенный организацией Alma-TQ анализ СМИ в Казахстане показал, что в отношении ТГЛ используется насмешливая и пренебрежительная риторика [40]. В Узбекистане ТГЛ, не имеющие справки с диагнозом F64.0 «транссексуализм», воспринимаются как переодетые мужчины, подвергаются осуждению и насилию наряду с другими МСМ [41]; со стороны государственных и религиозных деятелей звучат речи ненависти и призывы к насилию [42]. Узбекские СМИ демонизируют ТГЖ, используя острые заголовки в своих статьях [43]. В 2017 году бакинская полиция организовала рейд для поимки МСМ и ТГЛ [44]. При этом часть ТГЖ считает, что они сами виноваты в негативном отношении к ним: «[ТГЛ] вызывают агрессию у общества своим внешним видом. Нужно выглядеть соответствующе. Тогда никакой стигмы нет» [45]. Высказывалось мнение и о том, что трансфобия не

так распространена, как кажется [46].

Негативное отношение к секс-работе и множественности половых партнеров. ТГЖ, занятые в секс-работе, могут испытывать дополнительную стигматизацию. Секс-работницы считаются аморальными женщинами, заслуживающими насилия [47]. Украинское исследование показало, что правоохранители преимущественно воспринимают коммерческий секс как преступление, а секс-работниц как жертв (84,5%), чуть меньше (67,2%) считают, что секс-работницы — аморальные девианты [48]. По результатам украинского исследования, 29% родителей считают, что молодые люди, имеющие несколько половых партнеров, являются развращенными; 27% — что иметь половые отношения до брака стыдно [49].

Таблица 2 - Законодательные ограничения, потенциально затрагивающие ТГЖ

Страна	1*	2*	3*	4*	5*	6*	7*	8*	9*	10*
Балканы										
Албания	-	-	-	-	-	-	-	-	-	-
БиГ	-	-	-	-	-	-	-	-	-	-
С. Македония	-	-	-	-	-	-	-	-	-	-
Сербия	-	-	-	-	-	-	-	-	-	-
Черногория	-	-	-	-	-	-	-	-	-	-
Восточная Европа										
Беларусь	-	-	-	-	-	-	-	-	-	-
Молдова	-	-	-	-	-	-	-	-	-	-
Украина	4293 (0,01%) [9]	-	1.9% [6]	72% среди всех, 41,1% среди ВИЧ+[6]	31% неинъекц, 2% инъекц [6]	20% [6]	76% [6]	-	21% [6]	-
Центральная Азия										
Казахстан	-	-	-	-	-	-	-	-	-	-
Кыргызстан	-	-	28,8% [10]-38% [11]	-	-	70% [11]	-	69,7% [10]	-	-
Таджикистан	-	-	-	-	-	-	-	-	-	-
Узбекистан	-	-	-	-	-	-	-	-	-	-
Южный Кавказ										
Азербайджан	-	-	5,7% [12]	87,0% [12]	58,0% [12]	92,0% [12]	73,7% [12]	22,3% [12]	97,7% [12]	-
Армения	1015	0,5% [1]	2,5% [13]	-	40,0% [13]	85,0% [13]	87,7% [13]	3,5% [13]	-	75% [7]
Грузия	-	-	39.5%[14]	-	31.9%	76.6%[14]	87.2%[14]	-	-	-

** Вопросы: 1. Криминализация наркотиков; 2. Криминализация постановки в угрозу инфицирования, передачи ВИЧ или несообщения диагноза; 3. Криминализация сексуальной ориентации и/или трансгендерной идентичности; 4. Запрет пропаганды гомосексуальности и/или трансгендерности; 5. Криминализация секс-работы; 6. Отказ в наследовании и/или имущественных правах трансгендерными людьми; 7. Ограничения на въезд, пребывание и проживание для людей, живущих с ВИЧ; 8. Ограничения трудовых прав из-за ВИЧ-статуса; 9. Ограничение родительских прав, ограничение в праве на усыновление/удочерение, опекунство; 10. Запрет на военную службу и работу в военных структурах для ТГЖ*

d. Правовые факторы

Упомянутые выше социокультурные нормы находят отражение в законах и одновременно с этим подкрепляются существующими законами. В этом разделе рассмотрены законодательства 15 стран, которые косвенно могут повлиять на исходы в сфере ВИЧ для ТГЖ.

Законодательные ограничения, потенциально затрагивающие ТГЖ. Данные для этого раздела представлены в Таблице 2. Из обсуждаемых стран только в Узбекистане криминализованы добровольные сексуальные отношения между мужчинами (Уголовный кодекс, ст. 120). Эта статья используется и в отношении ТГЖ, имеющих мужской пол в идентификационных документах. В ряде стран (Молдова, Казахстан, Кыргызстан, Украина) были предложены законопроекты о запрете «пропаганды нетрадиционных сексуальных отношений», однако они не были приняты на момент сбора данных (в Кыргызстане соответствующий закон принят в августе 2023 года).

Во всех странах кроме Северной Македонии предусмотрено уголовное наказание за употребление ПАВ. Занятие секс-работой является административным правонарушением во всех странах за исключением Казахстана, Кыргызстана и Черногории, однако в этих трех странах криминализовано сутенёрство. Криминализация приводит к тому, что ТГЖ, употребляющие ПАВ и занятые в секс-работе, уходят в тень и становятся недоступными для программ в профилактики и лечения ВИЧ.

В 13 странах кроме Казахстана и Черногории существует криминализация постановки под угрозу инфицирования, передачи ВИЧ или несообщения диагноза. В Азербайджане (Миграционный кодекс, ст. 46.1.5) и Украине (закон «О защите населения от инфекционных заболеваниях», ст. 24) присутствуют ограничения на въезд, пребывание и проживание для ЛЖВ. Помимо этого, в Азербайджане (Постановление Кабинета Министров №62 от 27.04.2011, доп. №2), Армении (Постановление Правительства №573 от 11.12.1997), Беларуси (Постановление Совета Министров №343 от 13.04.2012) и Узбекистане (Приказ Министра здравоохранения №2581 от 07.05.2014) имеются ограничения трудовых прав для лиц с положительным ВИЧ-статусом. Под запрет подпадает занятие медицинскими профессиями из-за риска передачи ВИЧ пациентам; в Азербайджане

ограничения дополнительно мотивированы негативным влиянием вредных условий труда на иммунную систему (химическая, горнодобывающая промышленность). Ряд стран устанавливает ограничение на доступ к военной службе для лиц с диагностированными ментальными расстройствами, к которым относится и F64.0 «транссексуализм» (Постановление Правительства Армении №404 от 12.04.2018; Постановление Министерства обороны и Министерства здравоохранения Беларуси №51/170 от 20.12.2010; Приказ Министерства обороны Украины №402 от 14.08.2008, прил. 1, ст. 18). Только в Черногории закон «О вооруженных силах» ("Sl. list CG", br. 51/2017 i 34/2019, ст. 16) гарантирует недискриминацию при приёме на военную службу независимо от гендерной идентичности. Несмотря на отсутствие прямого ограничения на наследование или владение имуществом для ТГЖ, из-за невозможности зарегистрировать брак между лицами, имеющими один гражданский пол, во всех упомянутых странах ТГЖ могут сталкиваться со сложностями при получении имущества умерших партнёров. Запрет на определённые профессии (зачастую высокооплачиваемые), ограничение на службу в армии по контракту и трудности с получением наследства ставят ТГЖ в невыгодное экономическое положение, что косвенно повышает риски заражения ВИЧ. Запреты в связи с положительным ВИЧ-статусом заставляют ТГЖ, живущих с ВИЧ, скрывать диагноз, что негативно сказывается на приверженности лечению.

Процедуры изменения гражданского пола. Данные для этого раздела представлены в Таблице 3. Законодательства 5 стран (Азербайджан, Албания, Армения, Кыргызстан и Северная Македония) не предусматривают возможности смены гражданского пола. В Армении и Кыргызстане такая возможность существовала ранее, однако в 2021 и 2020 соответственно законы были изменены. Отсутствие законодательства не означает отсутствие возможности смены документов на практике. В Азербайджане для этого требуется заключение психиатра и прохождение хирургических вмешательств [50]. В Северной Македонии также имеет место требование операций [51].

В БиГ («Инструкция по ведению регистрационных книг», №51/2013, 55/2013, 82/2013 i 6/2015), Грузии (закон «О гражданских актах» №5562 от 20.12.2011, ст. 78(ж)), Молдове (закон «Об актах гражданского состояния» №100 от 26.04.2001, ст. 66.2(с)) и Таджикистане (закон «О государственной регистрации актов гражданского состояния» №188 от 29.04.2006, ст. 74) возможность смены гражданского пола упомянута кратко, на практике могут выдвигаться различные требования. В Молдове [52] необходимо получение психиатрического заключения. В Грузии [53] и Таджикистане [54] наряду с психиатрическим заключением требуется прохождение хирургических операций.

Таблица 3 - Процедуры изменения гражданского пола

Страна	1*	2*	3*	4*
Балканы				
Албания	Нет			
БиГ	Да			
С. Македония	Нет			Да
Сербия	Да+	Да+	Да+/Нет	Да+/Нет
Черногория	Да+	Да+		
Восточная Европа				
Беларусь	Да+	Да+	Нет	Нет
Молдова	Да	Да		
Украина	Да+	Да+	Да+	
Центральная Азия				
Казахстан	Да+	Да+	Да+	Да+
Кыргызстан	Нет			
Таджикистан	Да	Да		Да
Узбекистан	Да+	Да+		
Южный Кавказ				
Азербайджан	Нет	Да		Да
Армения	Нет			
Грузия	Да	Да		Да

** Вопросы: 1. Присутствует ли упоминание возможности смены гражданского пола в законодательстве? Да — упоминается; Да+ — прописано подробно. 2. Требуется ли диагноз F64.0 «транссексуализм» для смены гражданского пола? Да — требуется на практике; Да+ — требуется на практике и прописано в законодательстве. 3. Требуется ли подтверждение ЗГТ для смены гражданского пола? Да — требуется на практике; Да+ — требуется на практике и прописано в законодательстве. 4. Требуется ли прохождение операций для смены гражданского пола? Да — требуется на практике; Да+ — требуется на практике и прописано в законодательстве.*

Примечание: В Сербии требуется одно из двух: либо ЗГТ, либо операции.

Еще в шести странах процедуры смены гражданского пола прописаны подробно. В Беларуси (Постановление Министерства здравоохранения №163 от 09.12.2010) смена документов осуществляется после комплексного психиатрического, сексологического, генетического и эндокринологического освидетельствования, включающего стационирование в Республиканский научно-практический центр психического здоровья. Смена документов предшествует началу заместительной гормональной терапии (ЗГТ) и хирургическим вмешательствам. В Казахстане (Кодекс «О здоровье народа и системе здравоохранения» №360-VI ЗРК от 07.06.2020; Приказ Министра здравоохранения №ҚР ДСМ-203/2020

от 25.11.2020, прил. 4) лица, достигшие 21 года, могут поменять документы после комплексного освидетельствования, включающего стационирование в психиатрическое учреждение, и прохождения двух этапов медицинского перехода (первый — ЗГТ, второй — хирургические операции). В Сербии («О способе выдачи и форме справки компетентного учреждения здравоохранения об изменении пола» №103 от 26.12.2018) для изменения гражданского пола также требуется психиатрическое освидетельствование и прохождение ЗГТ либо хирургических операций. В Черногории («Об определении медицинских причин смены пола» №011-211/2014 от 03.11.2014) смена документов доступна для лиц, достигших 16 лет и прошедших комплексное обследование, включая психиатрическое. В Узбекистане возможность смены гражданского пола упоминается в статье 229 Семейного кодекса (№607-I от 30.04.1998) и подробно расписана во внутренней инструкции Министерства здравоохранения. Получить копию инструкции не удалось, известно лишь о требовании стационарное психиатрического обследования сроком не менее одного месяца. В Украине (Приказы Минздрава №972 от 15.09.2016 и №1041 от 05.10.2016) к обязательным требованиям относится амбулаторное психиатрическое наблюдение в течение 2 лет или стационарное наблюдение в течение 2 недель, а также прохождение ЗГТ.

Отсутствие возможности изменить гражданский пол приводит к негативным исходам в сфере ментального здоровья и дискриминации на рабочем месте, что является одним из факторов, толкающих ТГЖ в сферу секс-работы и повышающих риски заражения ВИЧ.

Доступ к гендерно-аффирмативным процедурам. Назначение ЗГТ и проведение операции для ТГЖ в большинстве случаев осуществляется в частных клиниках, информация о доступности тех или иных процедур ограничена. В таких странах, как Азербайджан, Армения, Молдова, Таджикистан и Узбекистан, вопрос о требовании диагноза «транссексуализм» перед ЗГТ и операциями не урегулирован. Требование диагноза может зависеть от вида вмешательств: в то время как для генитальных операций диагноз требуется, для феминизирующей пластики лица и маммопластики он обычно не нужен [55]. В Азербайджане эндокринологи отказываются работать с ТГЛ, в связи с чем они вынуждены обращаться к специалистам в Турции или Иране либо приобретать препараты ЗГТ без рецепта, в том числе на черном рынке [56]. Эндокринологи, готовые работать с ТГЛ, имеются и не во всех городах Украины, что ведёт к самостоятельному приёму ЗГТ [55]. В Беларуси распространенность самостоятельного приёма ЗГТ среди ТГЖ составляет 70.8% [38]. В Украине 54% ТГЖ принимают ЗГТ в форме таблеток, 24% в форме инъекций, 18% — гель, 4% — пластыри [6]. В Центральной Азии компетентные в вопросах трансгендерности эндокринологи принимают преимущественно в Бишкеке и Алматы, но для ТГЛ из других городов и стран доступны консультации онлайн; хотя официально для приобретения гормональных препаратов требуется рецепт, на практике его часто не спрашивают, но это зависит от региона страны [54]. Напротив, в Северной Македонии рецепты на препараты проверяются тщательно, в некоторых случаях фармацевты также запрашивают диагноз «транссексуализм»; в документах, подтверждающих диагноз, обычно стоит предыдущее имя, что является одним из препятствий для получения терапии [57]. В большинстве стран отсутствуют клинические рекомендации и протоколы по работе с ТГЛ. Например, в Грузии эндокринологи опираются на стандарты помощи, разработанные в США или Европе [58].

Из стран Центральной Азии операции доступны в Казахстане и Кыргызстане, однако их качество оставляет желать лучшего, в связи с чем ТГЛ, имеющие возможности, ездят на операции в другие страны, чаще всего в Россию [54,59]. ТГЖ из Украины также предпочитают делать операции за рубежом, например, в Беларуси, России или Таиланде [55,60].

Данные по использованию хирургических вмешательств были найдены только для Украины. «Опыт прохождения медицинских процедур с целью коррекции тела» имели 26% опрошенных ТГЖ, в том числе: маммопластика (14%), инъекции коллагена (12%), генитальная пластика (11%), феминизация лица (10%), инъекции силикона (6%), инъекции гиалуроновой кислоты (5%), орхиэктомия (2%) [6]. Только в Беларуси и Черногории («Об обязательном медицинском страховании» №6/2016, 2/2017, 22/2017, 13/2018, 67/2019) гендерно-аффирмативные вмешательства покрываются медицинским страхованием. В остальных странах государственная система страхования либо отсутствует в принципе, либо данные операции для ТГЖ не входят в число покрываемых вмешательств. Например, в Северной Македонии орхиэктомия покрывается страхованием для пациентов с раком яичек, но не для ТГЖ [57]. Попытки включить гендерно-аффирмативные вмешательства в число мероприятий, покрываемых страхованием, могут вызывать политическое противодействие. Например, в 2019 году было обнародовано заявление министра здравоохранения Северной Македонии о планах включить эти вмешательства в число финансируемых, однако после негативных комментариев пользователей социальных сетей министерство опровергло информацию [61,62].

е.Комплексный ответ на ВИЧ

В этом разделе под «комплексным ответов» понимается то, как медицинские, социокультурные и экономические факторы учитываются или не учитываются при планировании ответных мер на ВИЧ среди ТГЖ.

Выделение ТГЛ или ТГЖ в качестве отдельной ключевой группы. Смешивание ТГЖ и МСМ многократно отмечалось как барьер для получения услуг профилактики и лечения ВИЧ для ТГЖ [63], однако в большинстве стран региона ТГЖ (и шире ТГЛ) не упомянуты в качестве отдельной ключевой группы в национальных ответных мерах по ВИЧ и получают услуги как МСМ или секс-работницы. Например, в Албании и Черногории ТГЛ упоминаются как часть группы МСМ [64,65]. В Казахстане ТГЛ включены в группу «секс-работники» (Приказ Министра здравоохранения №ҚР ДСМ-137/2020 от 19.10.2020). В четырех странах региона ТГЛ (но не ТГЖ) выделены в качестве ключевой группы. В Молдове начиная с 2021 года ТГЛ были включены в национальную программу ответа на ВИЧ, которая включает тестирование на ВИЧ, ДКП, предоставление средств защиты, психологической поддержки, юридической поддержки и услуг в сфере сексуально-репродуктивного здоровья [66]. В

Кыргызстане ТГЛ упомянуты в ряде официальных документов, включая Программу Правительства по преодолению ВИЧ-инфекции в Кыргызской Республике на 2017–2021 годы (утверждена Постановлением Правительства №852 от 30.12.2017). В Сербии Стратегия профилактики и борьбы с ВИЧ-инфекцией и СПИДом на 2018–2025 года. включает ТГЛ (Службе РС", №61 от 08.09.2018). Черновая версия Национального стратегического плана Грузии на 2023–2025 года также выделяет группу ТГЛ [67]. Только в Армении Национальная программа 2022–2026 года выделяет ТГЖ (не ТГЛ) как ключевую группу [68], конкретные мероприятия определены в прилагаемом Рабочем плане [69].

Понимание социально-экономических факторов, влияющих на доступ ТГЖ в АРВТ и удержанию на лечении. Факторы, влияющие на доступность профилактики и лечения ВИЧ для ТГЖ, были рассмотрены выше, однако обзор официальных документов свидетельствует о том, что они не учитываются при планировании национальных стратегий в сфере ВИЧ. В Армении [69] и Молдове [66] в Национальных стратегиях по ВИЧ было найдено упоминание дискриминации, однако остальные факторы, специфические для ТГЖ, не обсуждаются. Черновая версия Национального стратегического плана Грузии на 2023–2025 года [67] упоминает стигму и дискриминацию, насилие, отсутствие социального и юридического признания гендерной идентичности, трудности в сфере трудоустройства и образования. В остальных случаях вопросы насилия на государственном уровне, как правило, обсуждаются только в отношении цисгендерных женщин, тогда как ТГЖ оказываются незащищенными от насилия из-за того, что в документах многих из них указан мужской пол [21]. Также в рассмотренных странах не удалось найти эмпирических исследований, изучающих влияние этих факторов на доступность услуг профилактики и лечения ВИЧ.

Совмещение услуг профилактики и лечения ВИЧ с гендерно-аффирмативными мероприятиями. Совмещение услуг профилактики и лечения ВИЧ с гендерно-аффирмативными мероприятиями (например, бесплатная консультация эндокринолога, раздача гормональных препаратов) рекомендовано как один из механизмов вовлечения ТГЖ в программы противодействия ВИЧ [70]. Например, ТГЛ в Украине сообщали, что гендерно-аффирмативные мероприятия являются для них приоритетом, поэтому совмещение их с программами ВИЧ было бы для многих мотивом получать профилактику и тестирование на ВИЧ [55]. Лишь в двух странах гендерно-аффирмативные мероприятия упоминаются в программах по ВИЧ. В Молдове Национальная программа противодействия ВИЧ предусматривает консультацию эндокринолога [66]. Черновая версия Национального стратегического плана Грузии на 2023–2025 года [67] включает предоставление ЗГТ в рамках расширенного пакета услуг. В странах, где государственные программы не предусматривают гендерно-аффирмативные мероприятия, соответствующие услуги могут оказываться на базе НПО. Например, в Украине «Альянс общественного здоровья» в рамках программы Глобального фонда приобрел 150 годовых курсов (5300 упаковок) феминизирующей и маскулинизирующей гормональной терапии [71].

Обсуждение

Западные Балканы, Восточная Европа, Южный Кавказ и Центральная Азия остаются недоизученными регионами в контексте ВИЧ среди ТГЖ. Биоповеденческие исследования, включающие ТГЖ, проведены лишь в Азербайджане, Армении, Кыргызстане и Украине. Численность ТГЖ оценивалась в диапазоне от 0,01% до 0,04%. Распространенность ВИЧ среди ТГЖ оценивалась в широком диапазоне от 1,9% до 39,5%. От 20% до 92% ТГЖ сообщили о занятости в секс-работе. Учитывая столь высокий разброс значений, не приходится говорить о репрезентативности выборок и высоком качестве данных исследований. Помимо этого, количественные и качественные данные говорят о том, что стигма и дискриминация в отношении ТГЖ являются серьезной проблемой и представляют собой барьеры в доступе к услугам профилактики и лечения ВИЧ. Лишь по одной стране доступны данные о ментальном здоровье ТГЖ.

Стигма и дискриминация возникают на фоне социокультурных норм, распространенных в обществах изучаемых стран, к каковым относятся: мизогиния и одобрение насилия, гомофобия, трансфобия, а также негативное отношение к секс-работе. Социокультурные нормы находят отражение в законах и одновременно с этим подкрепляются существующими законами. В Узбекистане сохраняется уголовная ответственность за добровольные сексуальные отношения между мужчинами, к числу которых причисляются и ТГЖ, не сменившие гражданский пол. В 14 из 15 стран введена уголовная ответственность за употребление ПАВ. В 12 странах секс-работа является административным правонарушение, еще в трех криминализовано сутенерство. 13 из 15 стран в том или ином виде криминализуют передачу ВИЧ. Указанные законодательные ограничения загоняют в тень ТГЖ, живущих с ВИЧ, занимающихся секс-работой и употребляющих ПАВ, что делает их менее доступными для программ профилактики и лечения ВИЧ. В 10 из 15 стран имеются процедуры изменения гражданского пола, причем в шести они прописаны подробно, в трех эти процедуры требуют проведения ЗГТ, в шести — операций (в Сербии проведение ЗГТ освобождает от операций и наоборот). При этом доступ к гендерно-аффирмативным процедурам в большинстве стран ограничен недостатком квалифицированных специалистов, отсутствием возможности покупки гормонов и плохим качеством операций. Только в двух странах данные процедуры покрываются за счет системы медицинского страхования.

Говоря о комплексном ответе на ВИЧ, следует отметить, что в большинстве стран ТГЛ в целом и ТГЖ в частности не выделены в качестве ключевых групп и объединяются с другими группами, такими как МСМ или секс-работники. Однако данная ситуация начала меняться в последние годы. На момент исследования в 5 из 15 стран ТГЛ были выделены в качестве ключевой группы, причем в одной выделены конкретно ТГЖ. Даже если ТГЛ упоминаются в национальных программах, проблемы стигмы, дискриминации и соблюдения их прав зачастую замалчиваются. Лишь в двух странах бюджет для противодействия ВИЧ включает финансирование гендерно-аффирмативных мероприятий.

Для повышения количества и качества данных следует проводить больше количественных и качественных исследований в сфере ВИЧ среди ключевых групп, делая разбивку по гендерным идентичностям и выделяя ТГЖ в качестве подгруппы.

Выводы

1) Количество и качество данных о распространенности ВИЧ и рискованного поведения среди ТГЖ региона остаются низкими. 2) Социокультурные нормы и дискриминационные законы косвенно способствуют повышению рисков заражения ВИЧ и создают препятствия для вовлечения в программы профилактики и лечения ВИЧ. 3) В 5 из 15 стран региона ТГЛ выделены в качестве ключевой группы, подверженной повышенным рискам передачи ВИЧ, что в перспективе должно привести к повышению качества и доступности услуг профилактики и лечения ВИЧ.

Конфликт интересов. Авторы заявляют об отсутствии конфликта интересов.

Вклад авторов. Концептуализация - Я.К. - С., Д.О.; методология - Я.К. - С.; подготовка отчетов по странам - Я.К. - С., А.Э., Д.Д., А.А, Дж.Б., Л.М., Л.С., Л.Г., Н.О., Н.Я., О.К., О.Х., С.К., В.М.; написание (обзор и редактирование) - Я.К. - С.; вычитка - Д.О.

Все авторы прочитали, согласились с окончательной версией рукописи и подписали форму передачи авторских прав.

Литература

1. *Baral S.D., Poteat T., Strömdahl S., Wirtz A.L., Guadamuz T.E., Beyrer C. Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. The Lancet Infectious Diseases. 2013;13(3):214–22. [Crossref]*

2. *Кирей-Ситникова Я. Социальные барьеры и фасилитаторы в доступе к тестированию, профилактике и лечению ВИЧ для трансгендерных женщин: тематический обзор // Бюллетень Национального научно-исследовательского института общественного здоровья имени Н А Семашко. 2022. - №4. - С. 57–64. [Google Scholar]*

Kirej-Sitnikova Ja. Social'nye bar'ery i fasilitatory v dostupe k testirovaniju, profilaktike i lecheniju VICh dlja transgendernyh zhenshhin: tematicheskij obzor (Social barriers and facilitators in access to HIV testing, prevention and treatment for transgender women: a scoping review) [in Russian]. Bjulleten' Nacional'nogo nauchno-issledovatel'skogo instituta obshhestvennogo zdorov'ja imeni N A Semashko. 2022; 4: 57–64. [Google Scholar]

3. *UNAIDS. UNAIDS Gender Assessment Tool: Towards a gender-transformative HIV response. UNAIDS; 2018. Website. [Cited 23 May 2024]. Available from URL:* https://www.unaids.org/sites/default/files/media_asset/unaids-gender-assessment-tool_en.pdf

4. *Kasianczuk M., Gabadadze B., Djuma V., Miruashvili L. The first population size estimation of transgender and non-binary people in Georgia. International Journal of Transgender Health, 2024; 25(4): 831-839. [Crossref]*

5. *Meier S.C., Labuski C.M. The demographics of the transgender population. In International handbook on the demography of sexuality. 2013: 289-327. [Crossref]*

6. *Трофименко О, Сазонова Я, Касянчук М, Лисенко Т, Андріанова І. Аналітичний звіт «Біоповедінкове дослідження серед трансгендерних людей в Україні». Центр громадського здоров'я МОЗ України; 2021.*

Trofymenko O, Sazonova Ja, Kasjanchuk M, Lysenko T, Andrianova I. Analitychnyj zvit "Biopovedinkove doslidzhennja sered transg'endernyh ljudej v Ukrai'ni" (Analytical report "Bio-behavioral research among transgender people in Ukraine") [In Ukrainian]. Public Health Center of Ukraine; 2021.

7. *Ответ Национального центра инфекционных заболеваний на запрос №АО-04-296 от 11.11.2022.*

(Answer of the National Center for Infectious Diseases on an inquiry) [in Russian]. №АО-04-296 from 11.11.2022.

8. *Кирей-Ситникова Я. Социальные факторы в дизайне эпидемиологических исследований эффективности медицинских процедур трансгендерного перехода (аналитический обзор) // Социальные аспекты здоровья населения. 2021. - №67(6). - С. 8. [Google Scholar]*

Kirej-Sitnikova Ja. Social'nye faktory v dizajne jepidemiologicheskih issledovanij jeffektivnosti medicinskih procedur transgendernogo perehoda (analiticheskij obzor) (Social Factors in the Design of Epidemiological Studies of Effectiveness of Medical Procedures of Gender Transition (Analytical Review)) [in Russian]. Social'nye aspekty zdorov'ja naselenija. 2021;67(6): 8. [Google Scholar]

9. *Kovtun O., Saliuk T., Sakhno Y., Paniotto V., Kharchenko N., Lyshtva O. Estimating the size of key populations, bridge populations and other categories in Ukraine, 2020: the network scale up method. ICF Alliance for Public Health; 2021: 103.*

10. *Карипова А, Мусазов Ф. Выход на неохваченных профилактическими программами транс* людей в Кыргызской республике, г. Бишкек с помощью методики «Внедрения силами равных». Кыргыз Индиго; 2020. Интернет источник. Режим доступа:* https://region.aph.org.ua/ru/28/

Karipova A, Musazov F. Vyhod na neohvachennyh profilakticheskimi programmami trans ljudej v Kyrgyzskoj respublike, g. Bishkek s pomoshh'ju metodiki «Vnedrenija silami ravnyh» (Reaching trans people not covered by prevention programs in Kyrgyz Republic, Bishkek using the method "Implementation by peers") [in Russian]. Kyrgyz Indigo; 2020. Internet istochnik. Rezhim dostupa:* https://region.aph.org.ua/ru/28/

11. *Республиканский центр "СПИД" МЗ КР. Био-поведенческое исследование по ВИЧ среди трансгендерных людей. Бишкек: Республиканский центр "СПИД" МЗ КР; 2022. Электронный ресурс. Режим доступа:* https://aidscenter.kg/wp-content/uploads/2023/06/Otchet_BPI_sredi_TG_Bishkek_2022.pdf

Republican center "AIDS". Bio-povedencheskoe issledovanie po VICh sredi transgendernyh ljudej (Bio-behavioral research on HIV among transgender people) [in Russian]. Bishkek: Republican center "AIDS"; 2022. Jelektronnyj resurs. Rezhim dostupa: https://aidscenter.kg/wp-content/uploads/2023/06/Otchet_BPI_sredi_TG_Bishkek_2022.pdf

12. *Republican Center of Struggle against AIDS of the Ministry of Health of the Republic of Azerbaijan. Report on the results of research of "Integrated Biological Behavioural Surveillance Survey" between HIV-vulnerable groups in the Republic of Azerbaijan: People Who Inject Drugs (PWID), men who have sex with men (MSM), transgender women (TGW), female sex workers (FSWs) and prisoners. Republican Center of Struggle against AIDS of the Ministry of Health of the Republic of Azerbaijan; 2022.*

13. National Center for Infectious Diseases. Integrated bio-behavioral surveillance surveys and key population size estimations among people who inject drugs, female sex workers, men who have sex with men, and transgender persons. National Center for Infectious Diseases; 2021.

14. Georgian Harm Reduction Network. Trans*Operational research of Reaching New Clients from Trans*Community through Peer Driven Intervention in Tbilisi, Georgia - Study Report. Georgian Harm Reduction Network; 2021.

15. Ruppert R., Kattari S., Sussman S. Prevalence of Addictions among Transgender and Gender Diverse Subgroups. International Journal of Environmental Research and Public Health. 2021; 18(16): 8843. [Crossref]

16. Becasen J.S., Denard C.L., Mullins M.M., Higa D.H., Sipe T.A. Estimating the prevalence of HIV and sexual behaviors among the US transgender population: a systematic review and meta-analysis, 2006–2017. American Journal of Public Health. 2019;109(1):1–8. [Crossref]

17. Untila S. Felis, minora trans, a fost înmormântată. Vineri va fi organizat un protest în fața Guvernului. NewsMaker. 2022. Electronic resource. Access mode: https://newsmaker.md/ro/felis-minora-trans-a-fost-inmormantata-vineri-fi-organizat-un-protest-in-fata-guvernului/

18. Gay.az. Трансгендеры в Азербайджане пожаловались на незащищенность представителей ЛГБТ. Gay.az. 2020. Электронный ресурс. Режим доступа: https://gay.az/223-transgendery-v-azerbajdzhane-pozhalovalis-na-nezaschischennost-predstavitelej-lgbt.html

Gay.az. Transgendery v Azerbajdzhane pozhalovalis' na nezashhishhennost' predstavitelej LGBT (Transgenders in Azerbaijan complained about the lack of protection of LGBT representatives) [in Russian]. Gay.az. 2020. Jelektronnyj resurs. Rezhim dostupa:https://gay.az/223-transgendery-v-azerbajdzhane-pozhalovalis-na-nezaschischennost-predstavitelej-lgbt.html

19. New Generation Humanitarian NGO. Continuous hatred and threats. A trans* person was beaten. New Generation Humanitarian NGO. 2022. Electronic resource. Access mode: https://ngngo.net/en/2022/06/07/continuous-hatred-and-threats/

20. New Generation Humanitarian NGO. Another manifestation of violence against a trans* person in Yerevan on the grounds of hate and discrimination. New Generation Humanitarian NGO. 2022. Electronic resource. Access mode: https://ngngo.net/en/2022/06/14/another-manifestation-of-violence/

21. ECOM - Eurasian Coalition on Health, Rights, Gender and Sexual Diversity, Queer Association TEMIDA, Equality Movement. Human Rights Violations Based on Sexual Orientation and Gender Identity in Georgia: An alternative report in relation to the consideration of the 6th periodic report of Georgia for the 84th Session of the Committee on the Elimination of Discrimination Against Women. ECOM - Eurasian Coalition on Health, Rights, Gender and Sexual Diversity; 2023. Electronic resource. Access mode: https://equality.ge/wp-content/uploads/2023/01/ECOM-Equality-Movement-and-Temida-CEDAW-CR-Georgia.pdf

22. Шенкер Т. Мы живем, пока нас не видят: Отчет исследования реалий жизни трансгендерных людей в Казахстане. Alma-TQ; 2021. Веб-сайт. [Дата обращения: 21 мая 2024]. Доступно по URL: https://www.alma-tq.org/post/research21

Shenker T. My zhivem, poka nas ne vidjat: Otchet issledovanija realij zhizni transgendernyh ljudej v Kazahstane (Living Our Lives Unseen: Research of the Realities of Life for Transgender People in Kazakhstan) [in Russian]. Alma-TQ; 2021. Veb-sajt. [Data obrashhenija: 21 maja 2024]. Dostupno po URL: https://www.alma-tq.org/post/research21

23. Шенкер Т., Ксан А., Ковязина К. Факторы риска инфицирования ВИЧ и ИППП, доступ к услугам профилактики и лечения ВИЧ для трансгендерных людей в Казахстане. Отчет исследования. Alma-TQ; 2022. Веб-сайт. [Дата обращения: 21 мая 2024]. Доступно по URL: https://www.alma-tq.org/hiv-and-transgender-people-in-kazakhstan-research

Shenker T, Ksan A, Kovjazina K. Faktory riska inficirovanija VICh i IPPP, dostup k uslugam profilaktiki i lechenija VICh dlja transgendernyh ljudej v Kazahstane. Otchet issledovanija (Risk factors for contracting HIV and STI, access to HIV prevention and treatment services for transgender people in Kazakhstan. Research report) [In Russian]. Alma-TQ; 2022. Veb-sajt. [Data obrashhenija: 21 maja 2024]. Dostupno po URL: https://www.alma-tq.org/hiv-and-transgender-people-in-kazakhstan-research

24. Лабрис, Кыргыз-Индиго. Оценка потребностей трансгендеров: Кыргызстан, Казахстан, Узбекистан, Таджикистан. Лабрис, Кыргыз-Индиго; 2016. Электронный ресурс. Режим доступа: https://www.kok.team/files/files/article/386/potrebnisti-ts.pdf

Labrys, Kyrgyz Indigo. Ocenka potrebnostej transgenderov: Kyrgyzstan, Kazahstan, Uzbekistan, Tadzhikistan (Needs assessment among transgenders: Kyrgyzstan, Kazakhstan, Uzbekistan, Tajikistan) [In Russian]. Labrys, Kyrgyz Indigo; 2016. Jelektronnyj resurs. Rezhim dostupa: https://www.kok.team/files/files/article/386/potrebnisti-ts.pdf

25. Stančetić M, Milosavljević M, Ranđelović D, Lepojević J. Istraživanje stavova mladih o rodno zasnovanom nasilju: kvantitativno i kvalitativno istraživanje sa preporukama (Investigating youth attitudes about gender-based violence: quantitative and qualitative research with recommendations) [in Serbian]. Krovna organizacija mladih Srbije; 2021.

26. INSTAT. Vrojtim kombëtar me bazë popullatën 2018: Dhuna ndaj Grave dhe Vajzave në Shqipëri (Violence between women and girls in Albania) [in Serbian]. INSTAT; 2019. Jelektronnyj resurs. Rezhim dostupa: https://www.undp.org/sites/g/files/zskgke326/files/migration/al/Raport-Studimor-Dhuna-ndaj-Grave-dhe-Vajzave-ne-Shqiperi.pdf

27. UNFPA Україна. Ставлення громадян до гендерно зумовленого та домашнього насильства. UNFPA Україна; 2020. Электронный ресурс. Режим доступа: https://ukraine.unfpa.org/sites/default/files/pub-pdf/prezetation_rozirvy_kolo_column_1_0.pdf

UNFPA Ukraïna. Ctavlennja gromadjan do genderno zumovlenogo ta domashn'ogo nasil'stva (Citizens' attitudes towards gender-based and domestic violence) [In Ukrainian]. UNFPA Ukraïna; 2020. Jelektronnyj resurs. Rezhim dostupa: https://ukraine.unfpa.org/sites/default/files/pub-pdf/prezetation_rozirvy_kolo_column_1_0.pdf

28. National Democratic Institute. LGBTI Public opinion poll: Western Balkans. National Democratic Institute; 2015. Website. [Cited 23 May 2024]. Available from URL: https://www.ndi.org/publications

29. United Nations Development Programme. Being LGBTI in Eastern Europe: Reducing inequalities and exclusion, and combating homophobia and transphobia experienced by LGBTI people in Bosnia and Herzegovina. United Nations Development Programme; 2017. Electronic resource. Access mode: https://www.undp.org/sites/g/files/zskgke326/files/migration/eurasia/undp-rbec-blee-BOSNIA-AND-HERZEGOVINA.pdf

30. Димова Н. Толеранција и вредности на граѓаните (Tolerance and values of citizens) [In Macedonian]. Македонски центар за меѓународна соработка; 2022. Electronic resource. Access mode: https://mcms.mk/mk/veb/2422-tolerancija-i-vrednosti-na-gragjanite.pdf

31. Bešić M. Patterns and degree of discrimination in Montenegro. Center for Democracy and Human Rights; 2020. Jelektronnyj resurs. Rezhim dostupa: https://www.cedem.me/wp-content/uploads/2023/02/2023-03.02.-eng-1-1-1.pdf

32. Кыргыз-Индиго. Отношение населения Кыргызстана к ЛГБТ-сообществу. Кыргыз Индиго; 2020. Веб-сайт. [Дата обращения: 21 мая 2024]. Доступно по URL: https://ecom.ngo/news-ecom/kyrgyzstan-unhrc

Kyrgyz Indigo. Otnoshenie naselenija Kyrgyzstana k LGBT-soobshhestvu (Attitudes of Kyrgyzstan's population toward the LGBT community) [In Kyrgyz]. Kyrgyz Indigo; 2020. Veb-sajt. [Data obrashhenija: 21 maja 2024]. Dostupno po URL: https://ecom.ngo/news-ecom/kyrgyzstan-unhrc

33. Київський міжнародний інститут соціології. Сприйняття ЛГБТ людей та їх прав в Україні: травень 2022 року. Київський міжнародний інститут соціології; 2022. Веб-сайт. [Дата обращения: 21 мая 2024]. Доступно по URL: https://www.kiis.com.ua/?lang=ukr&cat=reports&id=1417&page=1

Kiev International Institute of Sociology. Spryjnjattja LGBT ljudej ta i'h prav v Ukrai'ni: traven' 2022 roku (Acceptance of LGBT people and their rights in Ukraine: May 2022) [In Ukrainian]. Kiev International Institute of Sociology; 2022. Veb-sajt. [Data obrashhenija: 21 maja 2024]. Dostupno po URL: https://www.kiis.com.ua/?lang=ukr&cat=reports&id=1417&page=1

34. National Democratic Institute. Можливості та перешкоди на шляху демократичного переходу України. National Democratic Institute; 2022. Электронный ресурс. Режим доступа: https://www.kiis.com.ua/materials/pr/20230630_p/May%202023_wartime%20survey_Public%20version_Ukr.pdf

National Democratic Institute. Mozhlivosti ta pereshkodi na shljahu demokratichnogo perehodu Ukraïni (Opportunities and obstacles to Ukraine's democratic transition) [In Ukrainian]. National Democratic Institute; 2022. Jelektronnyj resurs. Rezhim dostupa: https://www.kiis.com.ua/materials/pr/20230630_p/May%202023_wartime%20survey_Public%20version_Ukr.pdf

35. Ipsos. Global Attitudes Toward Transgender People. Ipsos; 2018. Electronic resource. Access mode: https://www.ipsos.com/sites/default/files/ct/news/documents/2018-01/ipsos_report-transgender_global_data-2018.pdf

36. Идентичность и право. «Больше не неведома зверушка»: две истории о принятии себя трансгендерными женщинами. Идентичность и право. 2019. Электронный ресурс. Режим доступа: https://vk.com/@identitylaw-bolshe-ne-nevedoma-zverushka-dve-istorii-o-prinyatii-sebya-t

Identity and law. «Bol'she ne nevedoma zverushka»: dve istorii o prinjatii sebja transgendernymi zhenshhinami ("An unknown little animal no more": two stories of self-acceptance by transgender women) [in Russian]. Identity and law. 2019; Jelektronnyj resurs. Rezhim dostupa: https://vk.com/@identitylaw-bolshe-ne-nevedoma-zverushka-dve-istorii-o-prinyatii-sebya-t

37. Василевская С. Рожденные не в своем теле: как живется транссексуалам в Беларуси. Belta.by. 2015; Веб-сайт. [Дата обращения: 31 января 2024]. Доступно по URL: https://www.belta.by/comments/view/rozhdennye-ne-v-svoem-tele-kak-zhivetsja-transseksualam-v-belarusi-3686

Vasilevskaja S. Rozhdennye ne v svoem tele: kak zhivetsja transseksualam v Belarusi (Born in a wrong body: how transsexuals live in Belarus) [in Russian]. Belta.by. 2015; Veb-sajt. [Data obrashheniya: 31 yanvarya 2024]. Dostupno po URL: https://www.belta.by/comments/view/rozhdennye-ne-v-svoem-tele-kak-zhivetsja-transseksualam-v-belarusi-3686

*38. Шепелькевич А.П., Лузан А.М., Кузьменкова Е.И. Оценка медико-социальных факторов у трансгендерных лиц, получающих гормональную терапию. Лечебное дело. 2020; 2(72): 52-56. [*Google Scholar*]*

*Shepel`kevich A.P., Luzan A.M., Kuz`menkova E.I. Ocenka mediko-social`ny`x faktorov u transgenderny`x licz, poluchayushhix gormonal`nuyu terapiyu (Assessment of medical and social factors in transgender persons receiving hormonal therapy) [In Russian]. Lechebnoe delo. 2020; 2(72): 52-56. [*Google Scholar*]*

*39. Василевич Д. Права и обязанности индивида при смене половой принадлежности. Вестник БарГУ Серия «Исторические науки и археология. Экономические науки. Юридические науки», 2017; 130-130. [*Google Scholar*]*

*Vasilevich D.G. Prava i obyazannosti individa pri smene polovoj prinadlezhnosti (Rights and obligations of an individual when changing gender identity) [In Russian]. Vestnik BarGU Seriya «Istoricheskie nauki i arxeologiya. E`konomicheskie nauki. Yuridicheskie nauki», 2017; 130-130. [*Google Scholar*]*

40. Alma-TQ. Что и как пишут казахстанские СМИ о трансгендерных людях? Alma-TQ. 2019; Веб-сайт. [Дата обращения: 31 января 2024]. Доступно по URL: https://www.alma-tq.org/post/что-и-как-пишут-казахстанкие-сми-о-трансгендерных-людях

*Alma-TQ. Chto i kak pishut kazaxstanskie SMI o transgenderny`x lyudyax? (What and how do Kazakh media write about transgender people) [In Russian]. Alma-TQ. 2019; Veb-sajt. [Data obrashheniya: 31 yanvarya 2024]. Dostupno po URL:* https://www.alma-tq.org/post/chto-i-kak-pishut-kazaxstankie-smi-o-transgenderny`x-lyudyax

41. Nova24.uz. В Фергане устроили самосуд над мужчиной, переодетым в женскую одежду. 2022; Веб-сайт. [Дата обращения: 19 ноября 2023]. Доступно по URL: https://nova24.uz/incidents/v-fergane-ustroili-samosud-nad-muzhchinoj-pereodetym-v-zhenskuju-odezhdu/

Nova24.uz. V Fergane ustroili samosud nad muzhchinoj, pereodety`m v zhenskuyu odezhdu (In Fergana, a lynching was carried out on a man dressed in women's clothing) [In Russian]. 2022; Veb-sajt. [Data obrashheniya: 19 noyabrya 2023]. Dostupno po URL: https://nova24.uz/incidents/v-fergane-ustroili-samosud-nad-muzhchinoj-pereodetym-v-zhenskuju-odezhdu/

42. Gazeta.uz. «Я хочу помочь этим людям»: Алишер Кадиров — о предложении выдворять представителей ЛГБТ. Gazeta.uz. 2019; Веб-сайт. [Дата обращения: 7 июня 2024]. Доступно по URL: https://www.gazeta.uz/

ru/2021/06/07/kadirov-alisher/

Gazeta.uz. «Ya xochu pomoch` e`tim lyudyam»: Alisher Kadirov — o predlozhenii vy`dvoryat` predstavitelej LGBT ("I want to help these people": Alisher Kadirov on the proposal to expel LGBT representatives) [In Russian]. Gazeta.uz. 2019; Veb-sajt. [Data obrashheniya: 7 iyunya 2024]. Dostupno po URL: https://www.gazeta.uz/ru/2021/06/07/kadirov-alisher/

43. Медиазона. В Ташкенте обнаружили бордель, где работали переодетые в женщин ВИЧ-инфицированные мужчины. Медиазона. 2020; Веб-сайт. [Дата обращения: 12 ноября 2023]. Доступно по URL: https://mediazona.ca/news/2020/11/12/vich

Mediazona. V Tashkente obnaruzhili bordel`, gde rabotali pereodety`e v zhenshhin VICh-inficirovanny`e muzhchiny` (Brothel where HIV-infected men dressed as women worked discovered in Tashkent) [In Russian]. Mediazona. 2020; Veb-sajt. [Data obrashheniya: 12 noyabrya 2023]. Dostupno po URL: https://mediazona.ca/news/2020/11/12/vich

44. Outcry as Azerbaijan police launch crackdown on LGBT community. The Guardian. 2017. Website. [Cited 23 May 2024]. Available from URL: https://www.theguardian.com/world/2017/sep/28/azerbaijan-police-crackdown-lgbt-community

45. Определение потребностей ключевых групп населения в профилактических услугах в связи с ВИЧ/ТБ в Республике Беларусь. Евразийская сеть снижения вреда; 2017. Электронный ресурс. Режим доступа: https://ecom.ngo/library/otchet-ob-issledovanii-opredelenie-potrebnostey-kluchevih-grupp-naseleniya-v-profilakticheskih-uslugah-v-svyazi-s-vichtb-v-respublike-belarusj

Opredelenie potrebnostej klyuchevy`x grupp naseleniya v profilakticheskix uslugax v svyazi s VICh/TB v Respublike Belarus` (Determining the needs of key population groups for HIV/TB preventive services in the Republic of Belarus) [In Russian]. Evrazijskaya set` snizheniya vreda; 2017. Jelektronnyj resurs. Rezhim dostupa: https://ecom.ngo/library/otchet-ob-issledovanii-opredelenie-potrebnostey-kluchevih-grupp-naseleniya-v-profilakticheskih-uslugah-v-svyazi-s-vichtb-v-respublike-belarusj

46. Витебский курьер. Как в Витебске живется школьнику-трансгендеру. Как кусок мяса, активный гей, утяжка груди и мечта уехать из Белоруси. Витебский курьер. 2018. Веб-сайт. [Дата обращения: 28 ноября 2023]. Доступно по URL: https://vkurier.by/156746

Vitebskij kur`er. Kak v Vitebske zhivetsya shkol`niku- transgenderu. Kak kusok myasa, aktivny`j gej, utyazhka grudi i mechta uexat` iz Belorusi (How a transgender schoolboy lives in Vitebsk. As a piece of meat, an active gay, breast reduction and a dream to leave Belarus) [In Russian]. Vitebskij kur`er. 2018; Veb-sajt. [Data obrashheniya: 28 noyabrya 2023]. Dostupno po URL: https://vkurier.by/156746

47. Цветковиќ И., Дрндаревска Д., Коцевска Ј. Истражување на опсегот на родово засновано насилство врз жени и девојки на јавниот простор во општина Тетово. Коалиција Сексуални и здравствени права на маргинализираните заедници; 2019. Электронный ресурс. Режим доступа: https://coalition.org.mk/wp-content/uploads/2019/08/Rodovo-zasnovano-nasilstvo-MK_13_WEB.pdf

Czvetkoviќ I., Drndarevska D., Kocevska J. Istrazhuvanje na opsegot na rodovo zasnovano nasilstvo vrz zheni i devojki na javniot prostor vo opshtina Tetovo (Research on gender-based violence against women and girls in public space in Tetovo municipality) [in Ukrainian]. Koalicija Seksualni i zdravstveni prava na marginaliziranite zaednici; 2019. Jelektronnyj resurs. Rezhim dostupa: https://coalition.org.mk/wp-content/uploads/2019/08/Rodovo-zasnovano-nasilstvo-MK_13_WEB.pdf

48. Ковтун О.О. Ставлення представників правоохоронних органів до секс-працівниць та комерційного сексу. Легалайф-Украина; 2019. Веб-сайт. [Дата обращения: 23 декабря 2023]. Доступно по URL: https://uacrisis.org/uk/74475-atitude-to-sex-workers

Kovtun O.O. Stavlennya predstavnikiv pravooxoronnix organiv do seks-praczivnicz` ta komerczijnogo seksu (Attitudes of law enforcement officials towards sex workers and commercial sex) [in Ukrainian]. Legalajf-Ukraina; 2019. Veb-sajt. [Data obrashheniya: 23 dekabrya 2023]. Dostupno po URL: https://uacrisis.org/uk/74475-atitude-to-sex-workers

49. Аналітичний центр Cedos. Обізнаність та ставлення вчительської спільноти і батьків до комплексної сексуальної освіти. Аналітичний центр Cedos; 2020. Веб-сайт. [Дата обращения: 23 ноября 2023]. Доступно по URL: https://cedos.org.ua/researches/obiznanist-ta-stavlennia-vchytelskoi-spilnoty-i-batkiv-do-kompleksnoi-seksualnoi-osvity/

Analitichnij centr Cedos. Obiznanist` ta stavlennya vchitel`s`koї spil`noti i bat`kiv do kompleksnoї seksual`noї osviti (Cedos Analytical Center. Awareness and attitude of the teaching community and parents towards comprehensive sexual education) [in Ukrainian]. Analitichnij centr Cedos; 2020. Veb-sajt. [Data obrashheniya: 23 noyabrya 2023]. Dostupno po URL: https://cedos.org.ua/researches/obiznanist-ta-stavlennia-vchytelskoi-spilnoty-i-batkiv-do-kompleksnoi-seksualnoi-osvity/

50. Ибрагимхалилова З. Реально ли сменить пол в Азербайджане? 1news.az. 2009; Веб-сайт. [Дата обращения: 27 февраля 2024]. Доступно по URL: https://1news.az/society/20090227051339769.html

Ibragimxalilova Z. Real`no li smenit` pol v Azerbajdzhane? (Is it possible to change gender in Azerbaijan?) [in Russian]. 1news.az. 2009; Veb-sajt. [Data obrashheniya: 27 fevralya 2024]. Dostupno po URL: https://1news.az/society/20090227051339769.html

51. Дрндаревска Д. Извештај за повреди на човекови права од документирани случаи во Коалиција Маргини за периодот 1.3.2022-31.8.2022. Коалиција Маргини; 2022. Веб-сайт. [Дата обращения: 20 февраля 2024]. Доступно по URL: https://coalition.org.mk/archives/portfolio_page/izvestaj_povredi5

Drndarevska D. Izveshtaj za povredi na chovekovi prava od dokumentirani sluchai vo Koalicija Margini za periodot 1.3.2022-31.8.2022 (Report on violations of human rights from documented cases in the Margin Coalition for the period 1.3.2022-31.8.2022) [in Ukrainian]. Koalicija Margini; 2022. Veb-sajt. [Data obrashheniya: 20 fevralya 2024]. Dostupno po URL: https://coalition.org.mk/archives/portfolio_page/izvestaj_povredi5

52. Frolov A. Report on the situation of LGBT people's rights in the Republic of Moldova: Year 2021. GENDERDOC-M; 2021. Electronic resource. Access mode: https://gdm.md/wp-content/uploads/2023/04/Report-GENDERDOC-M-2021-English-2.pdf

53. Coalition for Equality. The right to non-discrimination in practice for various groups in Georgia: 2021 report. Coalition for Equality; 2021. Website. [Received date: May 2024]. Available at URL: https://wisg.org/index.php/en/publication/292/the-right-to-non-discrimination-in-practice-for-various-groups-in-georgia---2021-report

54. Yana Kirey-Sitnikova "Transgender activism in Kazakhstan, Kyrgyzstan and Tajikistan", Central Asian Survey, Taylor Francis Journals, 2024; 43(1): 33-48. [Google Scholar]

*55. Недужко О., Ковтун О., Семчук Н., Салюк Т. Звіт за результатами операційного дослідження: Оцінка профілактичних інтервенцій для транс*людей в Україні та визначення шляхів їх покращення. Альянс громадського здоров'я; 2021.[Google Scholar]*

Neduzhko O., Kovtun O., Semchuk N., Salyuk T. Zvit za rezul`tatami operaczijnogo doslidzhennya: Oczinka profilaktichnix intervenczij dlya trans*lyudej v Ukraïni ta viznachennya shlyaxiv ïx pokrashhennya (Operational Research Report: Assessing Preventive Interventions for Trans*People in Ukraine and Identifying Ways to Improve Them) [in Ukrainian]. Al`yans gromads`kogo zdorov'ya; 2021. [Google Scholar]

56. Gay.Az. В Азербайджане врачи отказываются работать с транс-людьми. GayAz. 2021; Электронный ресурс. Режим доступа: https://gay.az/283-v-azerbajdzhane-vrachi-otkazyvajutsja-rabotat-s-trans-ljudmi.html

Gay.Az. V Azerbajdzhane vrachi otkazyvajutsja rabotat' s trans-ljud'mi (Doctors in Azerbaijan Refuse to Work with Trans People)[in Russian]. GayAz. 2021; Jelektronnyj resurs. Rezhim dostupa: https://gay.az/283-v-azerbajdzhane-vrachi-otkazyvajutsja-rabotat-s-trans-ljudmi.html

57. Бошкова Н., Раиден И. Анализа на здравствените потреби на транс луѓето и достапноста на здравствените услуги во Република Македонија. Коалиција сексуални и здравствени права на маргинализирани заедници; 2016. Режим доступа: https://coalition.org.mk/wp-content/uploads/2020/10/Analiza-na-zdravstvenite-potrebi-na-trans-lugjeto.pdf

Boshkova N., Raiden I. Analiza na zdravstvenite potrebi na trans luѓeto i dostapnosta na zdravstvenite uslugi vo Republika Makedonija (Analysis of the health needs of trans people and availability of health services in the Republic of Macedonia) [in in Ukrainian]. Koalicija seksualni i zdravstveni prava na marginalizirani zaednici; 2016. Rezhim dostupa: https://coalition.org.mk/wp-content/uploads/2020/10/Analiza-na-zdravstvenite-potrebi-na-trans-lugjeto.pdf

58. Women's Initiatives Supporting Group. T'ranssp'etsipik'uri jandatsvis servisebi: p'olit'ik'is dok'ument'i [Trans-specific health services: a policy document]. Women's Initiatives Supporting Group; 2022. Access mode: https://hudoc.echr.coe.int/fre?i=001-214040

59. Орсеков Д. Картирование услуг, доступных транс-людям в медицинских учреждениях Кыргызстана. Кыргыз Индиго; 2019. Веб-сайт. [Дата обращения: 30 ноября 2023]. Доступно по URL: https://www.transcoalition.net/new-study-by-kyrgyz-indigo-2019/

Orsekov D. Kartirovanie uslug, dostupny`x trans-lyudyam v medicinskix uchrezhdeniyax Ky`rgy`zstana (Mapping services available to trans people in health care facilities in Kyrgyzstan) [In Russian]. Ky`rgy`z Indigo; 2019. Veb-sajt. [Data obrashheniya: 30 noyabrya 2023]. Dostupno po URL: https://www.transcoalition.net/new-study-by-kyrgyz-indigo-2019/

*60. Транс*Коалиция на постсоветском пространстве. Анализы страновых контекстов: Казахстан, Кыргызстан, Украина. Транс*Коалиция на постсоветском пространстве; 2017. Режим доступа: https://www.transcoalition.net/wp-content/uploads/2020/04/ask-tk-1.pdf*

*Trans*Koaliciya na postsovetskom prostranstve. Analizy` stranovy`x kontekstov: Kazaxstan, Ky`rgy`zstan, Ukraina (Trans*Coalition in the post-Soviet space. Country context analyses: Kazakhstan, Kyrgyzstan, Ukraine) [In Russian]. Trans*Koaliciya na postsovetskom prostranstve; 2017. Rezhim dostupa: https://www.transcoalition.net/wp-content/uploads/2020/04/ask-tk-1.pdf*

61. Реакция на коалиции «маргиналы» и «трансформа»: «здравето и право, а не привилегия!» 2019; Веб-сайт. [Дата обращения: 28 июня 2024]. Доступно по URL: https://24.mk/details/reakcija-na-koalicija-margini-i-transforma-zdravjeto-e-pravo-a-ne-privilegija

Reakciya na koalicii «marginaly`» i «transforma»: «zdraveto i pravo, a ne privilegiya!» 2019; Veb-sajt. [Data obrashheniya: 28 iyunya 2024]. Dostupno po URL: https://24.mk/details/reakcija-na-koalicija-margini-i-transforma-zdravjeto-e-pravo-a-ne-privilegija

62. Yukom. Saopštenje za javnost - prva presuda za zločin iz mržnje (Yukom. Public announcement - the first verdict for a crime from hate) [in Macedonian]. Yukom. 2018. Access mode: https://ravnopravnost.gov.rs/wp-content/uploads/2019/07/RGI.pdf

63. Sevelius J.M., Keatley J., Calma N., Arnold E. I am not a man': Trans-specific barriers and facilitators to PrEP acceptability among transgender women. Global Public Health, 2016; 11(7-8): 1060-1075. [Crossref]

64. Ministry of Health and Social Protection of the Republic of Albania. National Action Plan on HIV/AIDS 2020-2025. Ministry of Health and Social Protection of the Republic of Albania; 2019. Режим доступа: https://shendetesia.gov.al/wp-content/uploads/2023/12/Plani-i-Veprimit-i-Tuberkulozit-2020-2025-Eng-NSP.pdf

65. Vlada Crne Gore. Informacija u vezi Predloga programa za borbu protiv HIV/AIDS - a za period od 2021. do 2023. godine sa Predlogom akcionog plana za 2021 – 2022 (Government of Montenegro. Information u vezi Predloga programa za borbu protiv HIV/AIDS - a za period od 2021. do 2023. godine sa Predlogom aksionog plana za 2021 – 2022. Vlada Crne Gore; 2021. Access mode:) [In Albanian]. Vlada Crne Gore; 2021. Access mode: https://www.gov.me/dokumenta/60814eac-222a-441b-ab52-83411fecdcec

66. Министр здравоохранения Муниципалитета и социальной защиты Республики Молдова. Стандарты организации и функционирования услуг по профилактике ВИЧ среди среднего населения, в том числе в этой группе. Министр здравоохранения, Муниципалитета и социальной защиты Республики Молдова, 2020. Режим доступа: https://ms.gov.md/ru/

Ministr zdravooxraneniya Municipaliteta i social`noj zashhity` Respubliki Moldova. Standarty` organizacii i funkcionirovaniya uslug po profilaktike VICh sredi srednego naseleniya, v tom chisle v e`toj gruppe (Minister of Health of the Municipality and Social Protection of the Republic of Moldova. Standards of organization and functioning of services for the prevention of HIV among the average population, including in this group) [In Russian]. Ministr zdravooxraneniya, Municipaliteta i social`noj zashhity` Respubliki Moldova; 2020. Rezhim dostupa: https://ms.gov.md/ru/

67. Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs (MoIDPLHSA) of Georgia. Georgia HIV/AIDS National Strategic Plan 2023-2025 (6th draft). Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs (MoIDPLHSA) of Georgia; 2022. Access mode: https://ceh.unicef.org/

about/partners/georgia-ministry-internally-displaced-persons-occupied-territories-labour-health-and

68. Melkumova M., Movsesyan Y., Sargsyan S., Storey S., Keogh S.C. Challenges and Opportunities to advance adolescent health measurement in Armenia: Alignment between global Priority indicators and national Policies, and feasibility of collecting Sexual, Reproductive, and mental health indicators. Journal of Adolescent Health, 2024; 74(6): S80-S93. [Crossref]

69. Ministry of Health of Armenia. Work Plan Official Template. Ministry of Health of Armenia; 2021. Access mode: https://www.moh.am/uploads/eHealth%20Strategy_ENG.pdf

70. Кирей-Ситникова Я. Комплексный пакет мероприятий в связи с ВИЧ для трансгендерных людей в Восточной Европе и Центральной Азии. ЕКОМ; 2022. [Google Scholar]

Kirey-Sitnikova Y. Kompleksnyj paket meroprijatij v svjazi s VICh dlja transgendernyh ljudej v Vostochnoj Evrope i Central'noj Azii (Complex package of interventions in relation to HIV for transgender people in Eastern Europe and Central Asia) [In Russian]. ECOM; 2022. [Google Scholar]

71. Альянс громадського здоров'я. Ситуаційний звіт станом на 01.12.2022: Всесвітній день боротьби зі СНІДом: прискорення протидії ВІЛ під час війни. Альянс громадського здоров'я; 2022. Электронный ресурс. Режим доступа: https://aph.org.ua/wp-content/uploads/2022/11/SitRep-UA-1-Dec.pdf

Al`yans gromads`kogo zdorov'ya. Situaczijnij zvit stanom na 01.12.2022: Vsesvitnij den` borot`bi zi SNIDom: priskorennya protidiï VIL pid chas vijni (Alliance of Community Health. Situation update as of 12.01.2022: World Day of the fight against HIV/ AIDS: accelerating the fight against HIV in the hour of war) [in Ukrainian]. Al`yans gromads`kogo zdorov'ya; 2022. Rezhim dostupa: https://aph.org.ua/wp-content/uploads/2022/11/SitRep-UA-1-Dec.pdf

Батыс Балқан, Шығыс Еуропа, Оңтүстік Кавказ және Орталық Азияның 15 еліндегі трансгендер әйелдердің АИТВ-ның алдын алу және емдеу қызметтеріне қол жеткізудегі гендерлік кедергілер

Яна Кирей-Ситникова [1], Эртаева А. [2], Дрндаревска Д. [2], Авертисян А.[2], Барац Дж. М. [2], Мируашвили Л. [2], Сулейманова Л.[2], Гулбани Л.[2], Озтурк Н.[2], Янкович Н.Ю.[2], Ковтун О.[2], Ходжай О.[2], Кали С.В.[2], Мюлер В.[2], Орсеков Д.[3]

[1] Ғылыми кеңесші, Денсаулық, құқықтар, гендерлік және жыныстық әртүрлілік жөніндегі Еуразиялық коалиция, Таллин, Эстония. E-mail: yana.kirey.sitnikova@gmail.com

[2] Ел сарапшысы, Денсаулық, құқықтар, гендерлік және жыныстық әртүрлілік жөніндегі Еуразиялық коалиция, Таллин, Эстония

[3] Адвокация үйлестірушісі, Денсаулық, құқықтар, гендерлік және жыныстық әртүрлілік бойынша Еуразиялық коалиция, Таллин, Эстония

Түйіндеме

Зерттеудің мақсаты: Трансгендер әйелдер (ТГӘ) АҚТҚ жұқтыру қаупі жоғары негізгі топтардың бірі болып табылады. Бұл топ үшін әлеуметтік-экономикалық және құқықтық тәуекел факторлары туралы білім географиялық тұрғыдан біркелкі таралмаған. Зерттеу мақсаты Батыс Балқан (Албания, Босния және Герцеговина (БжН), Солтүстік Македония, Сербия, Черногория), Шығыс Еуропаның (Беларусь, Молдова, Украина) Оңтүстік Кавказ (Әзербайжан, Армения, Грузия) және Орталық Азия (Қазақстан, Қырғызстан, Тәжікстан, Өзбекстан) секілді зерттелмеген 15 елінде ТГӘ-дер үшін әлеуметтік-экономикалық және құқықтық тәуекел факторларын зерттеу болды.

Әдістері. ЮНЭЙДС гендерлік бағалау құралы негізінде сауалнама әзірленді. Сауалнаманы ғылыми жарияланымдарды, заңдар мен ресми құжаттарды, үкіметтік емес ұйымдардың есептерін және БАҚ басылымдарын талдау негізінде ел сарапшылары толтырды.

Нәтижелер. Биоқұлық зерттеулері, соның ішінде ТГӘ-дер тек Әзірбайжан, Армения, Қырғызстан және Украинада ғана жүргізілді. ТГӘ-дің көптігі 0,01%-дан 0,04%-ға дейін бағаланды. ТГӘ-дер арасында АҚТҚ-ның таралуы 1,9%-дан 39,5%-ға дейін ауытқиды. Әлеуметтік-мәдени нормалардан (мисогиния, зорлық-зомбылықты мақұлдау, гомофобия, трансфобия, секс жұмысына теріс көзқарас) туындайтын ТГӘ-ге қарсы стигма мен кемсітушілік АИТВ-ның алдын алу және емдеу қызметтеріне қол жеткізуге кедергі болып табылады.

Қорытынды. Әлеуметтік-мәдени нормалар заңдарда көрініс табады және сонымен бірге қолданыстағы заңдармен нығайтылады. 15 елдің онында азаматтық жыныстық өзгерту процедуралары бар: алтауында олар егжей-тегжейлі жазылған, үшеуінде гормондық терапия қажет, алтауында операция қажет. Тек екі ел медициналық сақтандыру арқылы жыныстық растайтын процедураларды қамтиды. Көптеген елдерде ТГӘ негізгі топ ретінде анықталмаған және ерлермен немесе секс-жұмыскерлермен жыныстық қатынасқа түсетін ерлер сияқты басқа топтармен топтастырылған.

Түйін сөздер: АҚТҚ; трансгендерлік; транссексуализм; денсаулықтың әлеуметтік-экономикалық детерминанттары.

Gender barriers to access to HIV prevention and treatment services for transgender women in 15 countries of the Western Balkans, Eastern Europe, South Caucasus and Central Asia

Yana Kirey-Sitnikova [1], Aiym Ertaeva [2], Dragana Drndarevska [2], Hmayak Avetisyan [2], John M. Barac [2], Lana Miruashvili [2], Leyla Suleimanova [2], Lika Gulbani [2], Natalia Ozturk [2], Nora Juno Jankovic [2], Oksana Kovtun [2], Olimbi Hoxhaj [2], Sultana Valentina Kali [2], Veaceslav Mulear [2], Daniyar Orsekov [3]

[1] Research Consultant, Eurasian Coalition on Health, Rights, Gender and Sexual Diversity, Tallinn, Estonia.
E-mail: yana.kirey.sitnikova@gmail.com
[2] Country Expert, Eurasian Coalition on Health, Rights, Gender and Sexual Diversity,
Tallinn, Estonia
[3] Advocacy Coordinator, Eurasian Coalition on Health, Rights, Gender and Sexual Diversity,
Tallinn, Estonia

Abstract

Transgender women (TGW) are one of the key groups at increased risk of HIV infection. Knowledge about the socio-economic and legal risk factors for this group is geographically unevenly distributed.

The aim of the study was to examine the socioeconomic and legal risk factors for TGW in 15 understudied countries of the Western Balkans (Albania, Bosnia and Herzegovina (BiH), North Macedonia, Serbia, Montenegro), Eastern Europe (Belarus, Moldova, Ukraine), South Caucasus (Azerbaijan, Armenia, Georgia) and Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan).

Methods. A questionnaire based on the UNAIDS Gender Assessment Tool was developed. The questionnaire was completed by country experts based on the analysis of scientific publications, laws and official documents, NGO reports and media publications.

Results. Biobehavioral studies including TGW were conducted only in Azerbaijan, Armenia, Kyrgyzstan and Ukraine. The incidence of TGW was estimated to range from 0.01% to 0.04%. HIV prevalence among TGW ranged from 1.9% to 39.5%. Stigma and discrimination against TGW, arising from sociocultural norms (misogyny, approval of violence, homophobia, transphobia, negative attitudes towards sex work), constitute a barrier to accessing HIV prevention and treatment services.

Conclusions. Sociocultural norms are reflected in laws and, at the same time, reinforced by existing laws. Ten out of 15 countries have procedures for changing civil gender: six have them spelled out in detail, three require hormonal therapy, and six require surgery. Only two countries cover gender-affirming procedures through health insurance. In most countries, TGW are not identified as a key group and are grouped with other groups, such as men who have sex with men or sex workers.

Keywords: HIV; transgender; transsexuality; socioeconomic determinants of health.

https://doi.org/10.32921/2225-9929-2024-4-74-80
UDC 616-089.844; 616.15-005
IRSTI 76.01; 76.29.46

Policy Brief

Study of effective methods for measuring population satisfaction with health services for implementation in Kazakhstan

Gulnara Kulkayeva [1], Nataliya Yushitsina [2], Meruert Makhambetova [3]

[1] *Chairman of the Board, National Scientific Center for Health Development, named after Salidat Kairbekova, Astana, Kazakhstan. E-mail: g.kulkayeva@nrchd.kz*

[2] *Head of the Analytical Center for Strategic Research and Initiatives in the Field of Healthcare, National Scientific Center for Health Development, named after Salidat Kairbekova, Astana, Kazakhstan. E-mail: n.yushitsina@nrchd.kz*

[3] *Chief Specialist of the Strategic Research and Health Initiatives in the Field of Healthcare department, National Scientific Center for Health Development named after Salidat Kairbekova, Astana, Kazakhstan. E-mail: m.makhambetova@nrchd.kz*

Abstract

The need for standardized and validated methods for evaluating patient satisfaction within Kazakhstan's healthcare system represents a significant obstacle to enhancing service quality. The existing methodologies are inconsistent, limiting their effectiveness for national and international comparisons. This brief draws upon systematic reviews and global best practices to present actionable recommendations for establishing reliable and culturally appropriate approaches to measuring patient satisfaction.

Policy options

1. Adopt Validated Questionnaires. Use globally recognized tools and adapt them to Kazakhstan's specific cultural and linguistic contexts to enhance reliability and comparability.

2. Incorporate Mixed-Methods Approaches. Integrate quantitative surveys with qualitative methods like focus groups and interviews to capture comprehensive patient experiences.

3. Develop a Centralized Data Platform. Establish a national system to standardize data collection, enabling real-time monitoring and regional comparisons.

Vision on the implementation of policy options

The proposed framework will enable Kazakhstan to align its healthcare evaluation practices with international standards, fostering patient-centered care and driving continuous quality improvements.

Keywords: healthcare quality Indicators, patient satisfaction, questionnaires, mixed-methods research, Kazakhstan, healthcare evaluation mechanisms, centralized data Systems, cross-cultural adaptation, policy Implementation in healthcare.

Corresponding author: Makhambetova Meruert, Chief Specialist of the Strategic Research and Health Initiatives in the Field of Healthcare department, National Scientific Center for Health Development, named after Salidat Kairbekova, Astana, Kazakhstan.
Postal code: Z00T6E0
Address: Kazakhstan, Astana, Mangilik el,20
Tel.: +7 7172 570 951
E-mail: m.makhambetova@nrchd.kz

J Health Dev 2024; 4 (59): 74-80
Recieved: 19-10-2024
Accepted : 14-12-2024

Introduction

Evaluating patient satisfaction is central to managing healthcare quality and serves as a key performance indicator worldwide. It signals how well the care provided aligns with patient expectations and indicates how effectively the system meets the community's health needs. Across the globe, this assessment has matured into a routine component of quality control, with numerous countries embedding patient satisfaction measures into their national oversight frameworks. By doing so, they aim to boost transparency, streamline the delivery of services, and ensure that patient-centered care remains at the heart of healthcare improvement efforts.

Studies conducted worldwide, including those by Ferreira D. (2023), emphasize the effectiveness of standardized tools and methodologies in improving healthcare outcomes. Internationally recognized instruments, such as the Patient Satisfaction Questionnaire Short Form (PSQ-18) and SERVQUAL (Service Quality), have enabled healthcare systems in the United States, Canada, and Europe to measure and enhance patient satisfaction systematically. These tools provide data for monitoring trends, identifying gaps, and developing targeted initiatives.

As patient-centered care gains traction worldwide, the role of satisfaction measures grows increasingly important in achieving fair and effective healthcare outcomes. Although recent health reforms in Kazakhstan have aimed at enhancing both the quality and reach of medical services, the integration of patient satisfaction as a vital performance benchmark remains an area that needs further development.

This gap presents an opportunity for Kazakhstan to leverage international best practices, adapt proven tools to its unique cultural and linguistic context, and establish a robust system for continuous improvement. This review outlines a strategy for integrating advanced international practices into Kazakhstan's healthcare system, adapting them to local requirements to facilitate comprehensive data collection and the development of actionable recommendations.

Problem description

Kazakhstan currently lacks a uniform way to measure how patients feel about their healthcare experiences, and this gap makes it tough to gain an accurate overall picture of the system's performance. The methods that are in place are scattered, inconsistent, and often do not lead to meaningful improvements.

Furthermore, existing surveys in Kazakhstan are predominantly focused on quantitative data, which, while helpful in identifying trends, often overlook the nuances of the patient experience. Internationally, mixed-method approaches that combine surveys with qualitative research have proven effective. For instance, in the United Kingdom, integrating interviews and focus groups into patient satisfaction assessments has provided more profound insights into specific patient issues, enabling targeted improvements in service delivery.

Another critical challenge is the need for a centralized data collection and analysis system. Countries such as Finland and Singapore have demonstrated the importance of national healthcare databases integrating patient satisfaction metrics with other performance indicators. These platforms enable real-time monitoring, interregional comparisons, and informed policy-making. In Kazakhstan, the absence of such infrastructure hampers systematic patient satisfaction tracking and makes it difficult to identify regional disparities.

Internationally, established survey tools like HCAHPS, PSQ-18, and SERVQUAL are widely regarded as trustworthy options for evaluating how patients perceive their care. Although these instruments are adaptable, they must be thoughtfully tailored to align with the unique context of Kazakhstan's healthcare environment.

Current challenges include:

1. Inconsistent methodologies – Surveys used across medical institutions in Kazakhstan vary significantly, resulting in fragmented data.

2. Cultural and linguistic barriers – International tools are not always effectively localized, undermining their reliability.

3. Data gaps – The absence of a centralized system limits the ability to analyze trends and implement evidence-based improvements.

Implementing validated tools, establishing methodological consistency, and creating a centralized data system will form the foundation for a more patient-centered and efficient healthcare system.

Contributing Factors

1. Limited capacity for adaptation – A lack of expertise in tailoring validated tools to the local context.

2. Fragmented implementation – Disparate methodologies result in inconsistent outcomes.

3. Low integration of qualitative data – Quantitative surveys fail to capture the nuances of patient experiences.

Policy Options

1. Adopt Validated Questionnaires

As Susan B. et al. (2023) highlighted, using proven tools is essential. Adapting validated instruments for use in Kazakhstan involves:

- Translation and cultural adaptation to ensure relevance and clarity.
- Pilot testing to confirm reliability and validity.
- Training healthcare professionals to ensure consistent implementation of the tools.

Description of tools for assessing patient satisfaction with health services

HCAHPS, SERVQUAL, and PSQ-18 are widely recognized and standardized tools. These tools' features are why they are widely used in practice.

The HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) is the first nationally standardized instrument for measuring inpatients' experiences in hospitals. This questionnaire was developed in the United States through a joint effort between the Centers for Medicare and Medicaid Services (CMS) and the Agency for Healthcare Research and Quality (AHRQ). First introduced in 2005, the HCAHPS includes 29 questions covering key aspects of patient interactions with healthcare providers, hospital environment, level of understanding of post-discharge recommendations, and overall impression of the care provided. The main goal of the tool is to ensure

transparency of the health care system and provide data that allow comparative analysis of the quality of services between institutions at the regional and national levels.

The standardization of the method makes it particularly valuable for monitoring quality and developing targeted improvements.

Servqual (Service Quality) was developed in 1988 by researchers Parasuraman, Zeithaml and Berry as a universal tool for measuring service quality. The methodology is based on the concept of the gap between consumers' expectations and their perception of the actual services provided. SERVQUAL assesses five key dimensions: reliability, responsiveness, assurance, empathy and material aspects (physical environment, equipment, comfort). The application of SERVQUAL in healthcare helps identify service weaknesses and take action to address them. Its versatility and flexibility have ensured its popularity in many sectors, including healthcare, where it is important to consider not only medical outcomes but also the subjective feelings of patients.

The PSQ-18 (Patient Satisfaction Questionnaire Short Form) is a shortened version of the original PSQ instrument developed by the RAND Corporation. This questionnaire was created in 1994 as a compact instrument to quickly assess patient satisfaction with the quality of care. The PSQ-18 includes 18 questions that assess seven key aspects of satisfaction: availability of services, competence of medical staff, quality of communication, waiting time, interpersonal aspects, technical quality, and financial aspects. The instrument combines ease of use and validity, making it an ideal choice for studies that require quality data in a short time. Its popularity is due to its adaptability to different contexts and its effectiveness in identifying factors affecting patient satisfaction.

These tools are widely used in healthcare due to their reliability, validity and ability to provide standardized data needed to monitor and improve the quality of services. Each methodology has its own unique characteristics and applications, allowing them to be used either in stand-alone studies or in combination to provide a more comprehensive picture. The choice of the appropriate tool depends on the research objectives, context and needs of a particular health system.

Table 1 - Comparative Table of HCAHPS, SERVQUAL, and PSQ-18 Instruments

Tool	HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems)	SERVQUAL (Service Quality)	PSQ-18 (Patient Satisfaction Questionnaire Short Form)
Purpose	Assessment of the experience of inpatient hospital patients	Measurement of service quality through the analysis of expectations and perceptions	Assessment of patient satisfaction with the quality of healthcare services
Developers	CMS и AHRQ	Parasuraman, Zeithaml, Berry	RAND Corporation
Year of development	2005	1988	1994
Number of Questions	29	Varies (5 key dimensions)	18
Key Dimensions	Communication with medical staff, hospital stay conditions, overall experience	Reliability, responsiveness, assurance, empathy, material aspects	General satisfaction, technical quality, accessibility, communication, financial aspects
Scope of Application	Inpatient care	Various services, including healthcare	General healthcare services
Reasons for Popularity	National standardization, transparency, comparison between hospitals	Focus on expectations and perceptions, universal applicability	Compactness, validation, ease of use
Cultural Adaptation	Requires translation and adaptation to the local context	Requires adaptation to cultural specificities	Easily adaptable for different countries
Features	Open access to results for patients and specialists	Focus on the gap between expectations and actual perceptions	Compactness and convenience for research
Main Limitations	May not account for the specifics of outpatient or specialized services	Requires adaptation to the specifics of the service	The shortened version may overlook nuances

This table clearly reflects the key characteristics, strengths and weaknesses of each tool, which allows you to choose the most appropriate one for certain purposes in the health care system of Kazakhstan.

Application of HCAHPS, SERVQUAL and PSQ-18 tools in scientific research

1. HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems)

Research Example: In "Patient Experience and HCAHPS at Essential Hospitals" (Clark, D., 2019), the author reviews HCAHPS data gathered from multiple healthcare facilities. The findings indicate that this survey tool effectively pinpoints differences in how patients perceive their care, thereby offering essential insights that can guide efforts to enhance service quality.

2. Servqual

Case Study Example: In the study "Experience with SERVQUAL in Measuring Patient Satisfaction with Quality of Health Care Services" (Danilov, A., et al., 2021), researchers employed SERVQUAL within a hospital setting. Their results revealed that the instrument clearly highlighted discrepancies between what patients anticipated and what they actually experienced. This information became a valuable resource for directing initiatives aimed at improving service delivery.

3. PSQ-18 (Patient Satisfaction Questionnaire Short Form)

Case Study Example: In the article "The Patient Satisfaction Questionnaire Short Form (PSQ-18) as an Adaptable, reliable, and Validated Tool for Use in Various Settings" (Thayaparan A. et al., 2013), the PSQ-18 was implemented to evaluate patient satisfaction in multiple healthcare contexts. The researchers confirmed that the tool is both trustworthy and valid, reinforcing its suitability for a wide range of environments.

Overall, the studies mentioned highlight that HCAHPS, SERVQUAL, and PSQ-18 have each proven effective at gauging patient satisfaction. By generating dependable data, these instruments support efforts to enhance the overall quality of healthcare services.

2. Incorporate Mixed-Methods Approaches

Ferreira et al. (2023) emphasize the value of combining quantitative and qualitative methodologies. Key steps include:

- Conducting large-scale surveys to identify general trends.
- Using interviews and focus groups to gather deeper insights into patient experiences.
- Data triangulation to provide a comprehensive understanding of patient satisfaction.

Qualitative methods for assessing population satisfaction with health care services

Qualitative research methods offer unique opportunities to delve deeply into patients' experiences and understand their perceptions of health care services. Unlike quantitative surveys that focus on numerical indicators, qualitative approaches can reveal emotional, behavioral, and social aspects of patients' interactions with the health care system. In the context of Kazakhstan, where cultural and regional differences can significantly influence patients' experiences, the use of qualitative methods becomes particularly relevant.

One of the most effective methods is in-depth interviews, which provide detailed information about individual patient experiences. Such interviews help to explore specific instances of dissatisfaction or, conversely, high praise for services, enabling the identification of hidden problems and key patient expectations To conduct successful interviews, it's essential to recognize and respect the cultural and language backgrounds of the participants. Interviewers need more than just strong questioning skills—they must also cultivate an atmosphere of trust and openness that encourages participants to speak candidly.

Focus groups represent another method that allows collecting opinions from several participants simultaneously. This approach is particularly effective for identifying common problems and discussing suggestions for improving service quality. Participants in focus groups can exchange their impressions, which stimulates deeper discussion.

However, ensuring that focus group sessions run smoothly involves more than just bringing participants together. An experienced moderator is essential, someone who can keep the conversation on track, encourage everyone to contribute equally, and prevent any single individual from dominating the discussion. Moreover, selecting participants who share certain characteristics—such as being the same age, having a similar gender identity, or having used the same types of services—can make the information collected more directly applicable and valuable. Observation is a unique method that allows studying real interactions between patients and medical staff in natural conditions.

This approach provides an opportunity to capture not only verbal but also non-verbal aspects of interaction, which is important for evaluating service quality. However, for successful application of observation, ethical aspects such as ensuring confidentiality and obtaining informed consent from participants must be taken into account. Observers must be trained to objectively record data, avoiding bias.

Analyzing patient complaints and suggestions provides another useful avenue for pinpointing the most pressing shortcomings in the healthcare system. These grievances often come with detailed accounts of dissatisfaction, making them a rich source of insights into underlying, systemic issues. By regularly reviewing such feedback, healthcare providers can address problems as they arise while also identifying broader patterns that call for more strategic, long-term solutions.

The application of qualitative methods in Kazakhstan requires adaptation to local conditions. This includes training researchers and moderators, developing guidelines for conducting interviews and focus groups, and creating a unified system for data analysis. Additionally, pilot projects in various regions of the country can help identify the specifics of how medical services are perceived and optimize the methods for their evaluation.

Thus, qualitative research methods provide a deeper understanding of population satisfaction with healthcare services. Their application, combined with quantitative approaches, can offer a comprehensive view of the state of the healthcare system, which, in turn, contributes to the development of effective strategies for its improvement.

3. Development of a Centralized Data Platform

A centralized system, as recommended in both studies, would:

- Standardize data collection processes across institutions and regions.
- Enable cross-regional and demographic analyses to identify disparities.
- Serve as a foundation for longitudinal studies to monitor trends and track improvements over time.

Establishing a unified data platform is a key strategic move in creating a patient-centered, modern healthcare infrastructure. Having a centralized system for gathering and evaluating information helps standardize procedures and ensures that results can be effectively compared across different regions and medical facilities. Furthermore, such a system provides a foundation for long-term research necessary for monitoring changes and implementing effective solutions.

The implementation of centralized data platforms has already proven effective in several countries with advanced healthcare systems. For example, in Finland, the national healthcare data platform integrates information on patient experiences, treatment outcomes, and service satisfaction. This system enables interregional analysis, identifies disparities in service quality, and supports evidence-based decision-making to improve services. The Finnish model is also actively used for long-term research aimed at assessing the impact of reforms on patient satisfaction levels.

Singapore offers another example of the successful implementation of a centralized platform. The national healthcare monitoring system consolidates data drawn from various medical providers, such as hospitals, clinics, and specialized facilities. One of its core strengths lies in its ability to assess patient experiences. This not only helps determine current satisfaction levels but also allows for tracking how patients' views change over time. Insights gleaned from this system guide decision-making at both the individual institution and broader government levels, informing policies designed to enhance the overall quality and reach of healthcare services.

In the United Kingdom, the National Health Service (NHS) relies on the Friends and Family Test to gather ongoing input from patients. After collecting this feedback, health authorities carefully analyze it to see how well care is being delivered, identify where changes might be needed, and make improvements as quickly as possible. The positive impact of this approach has shown that consolidating patient insights in one place not only drives up service quality but also reinforces the public's trust in the healthcare system.

In Kazakhstan, where regional and demographic differences can heavily influence both the availability and quality of healthcare, establishing a centralized data platform is especially important. A unified data collection system will enable standardized assessment methods, ensuring comparability of results across the country. This, in turn, will create conditions for identifying regional disparities and developing targeted strategies to address them.

In addition, such a centralized platform would support long-term research efforts. Rather than offering just a snapshot of current conditions, it allows for monitoring how things change as new policies and improvements roll out. In a setting where healthcare reforms are underway, tracking these shifts is essential. By examining emerging trends and seeing how well certain initiatives work in practice, decision-makers can refine their strategies, ensuring that modernization efforts produce the desired results.

Thus, the implementation of a centralized data platform is not only necessary but also a feasible solution for Kazakhstan. The examples of Finland, Singapore, and the United Kingdom demonstrate that such systems form the basis for enhancing transparency, accessibility, and quality in healthcare services.

The realization of this initiative will allow Kazakhstan to improve monitoring of population satisfaction.

Vision on the Implementation of Policy Options

Potential Barriers

1. Resistance to change – Healthcare providers accustomed to existing tools may be reluctant to adopt new methodologies.

2. Limited expertise in qualitative research – Healthcare personnel may lack the necessary skills for conducting interviews or focus groups.

3. High initial costs – Developing IT infrastructure and maintaining a centralized data system require significant upfront investment and ongoing operational expenses.

Potential Opportunities

1. Enhanced international collaboration and benchmarking – Leveraging global expertise and comparing performance with international standards can accelerate progress.

2. Improved patient engagement – Incorporating patient feedback through mixed-method approaches can provide actionable recommendations for healthcare improvements.

3. Data-driven policymaking – A centralized data platform enables informed decision-making and more efficient resource allocation, ultimately improving the healthcare system's effectiveness and equity.

Conclusion

For Kazakhstan to develop a strong framework to evaluate patient satisfaction, it is crucial to implement proven tools like PSQ-18 and SERVQUAL. However, it is important to ensure that those tools are well suited to the cultural and linguistic norms in the local community. Combining qualitative and quantitative methods will help identify overall patient patterns and individual patient experiences. Moreover, creating a centralized information system will allow consistent monitoring of patient outcomes, promoting evidence-based decision-making on a regional level. Considering the findings of Mallinson et al. (2023) and Turner et al. (2023), these initiatives will help the healthcare system address patient expectations and further improve the quality of medical services.

Conflict of Interest: None declared.

Author Contributions

Conceptualization, methodology, writing (Original Draft), writing (Review and Editing) - Y.N., M.M.

All authors read the final manuscripts and confirmed the copyright transfer form.

References

1. Banda S., Nkungula N., Chiumia I. K., Rylance J. et al. Tools for measuring client experiences and satisfaction with healthcare in low-and middle-income countries: a systematic review of measurement properties. BMC Health Services Research, 2023; 23(1): 133. [Crossref]

2. Friedel A.L., Siegel S., Kirstein C.F., Gerigk M. et al. Measuring patient experience and patient satisfaction-how are we doing it and why does it matter? A comparison of european and us american approaches. In Healthcare, 2023; 11(6): 797. [Crossref]

3. Ferreira D.C., Vieira I., Pedro M.I., Caldas P. Patient satisfaction with healthcare services and the techniques used for its assessment: a systematic literature review and a bibliometric analysis. In Healthcare 2023; 11(5): 639. [Google Scholar]

4. Nasir K., Okunrintemi V. Association of patient-reported experiences with health resource utilization and cost among US adult population, medical expenditure panel survey (MEPS), 2010–13. International Journal for Quality in Health Care, 2019; 31(7): 547-555. [Crossref]

5. Dunsch, F., Evans, D. K., Macis, M., & Wang, Q. (2018). Bias in patient satisfaction surveys: a threat to measuring healthcare quality. BMJ global health, 2018; 3(2): e000694. [Crossref]

6. Larson E., Sharma J., Bohren M.A., Tunçalp Ö. When the patient is the expert: measuring patient experience and satisfaction with care. Bulletin of the World Health Organization, 2019; 97(8): 563. [Crossref]

7. Leow H.T., Liew S.M. A cross sectional study on patient satisfaction and its association with length of consultation at the University Malaya Medical Centre Primary Care Clinic. Malaysian Family Physician: the Official Journal of the Academy of Family Physicians of Malaysia, 2022; 17(2): 71. [Crossref]

8. Clark D., Roberson B. Patience Experience and HCAHPS at Essential Hospitals, 2019. [Google Scholar]

9. Данилов А.В., Сон И.М., Меньшикова Л.И. Опыт использования метода Servqual для измерения удовлетворенности пациентов качеством медицинских услуг //Проблемы социальной гигиены, здравоохранения и история медицины. - 2021. - Т. 29. - №3. - С. 519-524. [Crossref]

Danilov A.V., Son I.M., Men`shikova L.I. Opy`t ispol`zovaniya metoda Servqual dlya izmereniya udovletvorennosti pacientov kachestvom medicinskix uslug (The experience of using the Servqual method to measure patient satisfaction with the quality of

medical services) [in Russian]. Problemy`social`noj gigieny`, zdravooxraneniya i istoriya mediciny, 2021; 29(3): 519-524. [Crossref]

10. Thayaparan A.J., Mahdi E. The Patient Satisfaction Questionnaire Short Form (PSQ-18) as an adaptable, reliable, and validated tool for use in various settings. Medical education online, 2013; 18(1): 21747. [Crossref]

11. Centers for Medicare and Medicaid Services Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores and gynecologic surgical outcomes. Gynecologic Oncology, 2019; 154(2). [Crossref]

12. Thayaparan A.J., Mahdi E.J. The Patient Satisfaction Questionnaire Short Form (PSQ-18) as an adaptable, reliable, and validated tool for use in various settings, 2013; 18(1): 21747. [Crossref]

13. Parasuraman A., Zeithaml V.A., Berry L.L. Servqual: A multiple-item scale for measuring consumer perc. Journal of retailing, 1988; 64(1): 12. [Google Scholar]

Қазақстанда енгізу үшін халықтың денсаулық сақтау қызметтеріне қанағаттануын өлшеудің тиімді әдістемелерін зерделеу

Кулкаева Г.У. [1], Юшицина Н.Г. [2], Махамбетова М.Е. [3]

[1] Басқарма төрайымы, Салидат Қайырбекова атындағы Ұлттық ғылыми денсаулық сақтауды дамыту орталығы, Астана, Қазахстан. E-mail: g.kulkayeva@nrchd.kz

[2] Денсаулық сақтау саласындағы стратегиялық зерттеулер мен бастамаларды талдау орталығының басшысы, Салидат Қайырбекова атындағы Ұлттық ғылыми денсаулық сақтауды дамыту орталығы, Астана, Қазақстан. E-mail: n.yushitsina@nrchd.kz

[3] Денсаулық сақтау саласындағы стратегиялық зерттеулер мен бастамаларды талдау орталығының бас маманы, Салидат Қайырбекова атындағы Ұлттық ғылыми денсаулық сақтауды дамыту орталығы, Астана, Қазақстан. E-mail: m.makhambetova@nrchd.kz

Түйіндеме

Қазақстанның денсаулық сақтау жүйесінде пациенттердің қанағаттанушылығын бағалаудың стандарттарған және валидацияланған әдістерінің болмауы қызмет көрсету сапасын арттыруға айтарлықтай кедергі болып табылады. Қолданыстағы әдістемелер келісілмеген, бұл олардың ұлттық және халықаралық деңгейде тиімділігін шектейді. Бұл шолу жүйелі зерттеулер мен әлемдік үздік тәжірибелерге сүйене отырып, пациенттердің қанағаттануын өлшеуге сенімді және мәдени бейімделген тәсілдерді құру бойынша практикалық ұсыныстарды ұсынады.

Саясат нұсқалары

1. Валидацияланған сауалнамаларды пайдалану. Деректердің сенімділігі мен салыстырмалылығын арттыру үшін Қазақстанның мәдени және тілдік ерекшеліктеріне бейімделе отырып жаһандық танылған құралдарды қолдану.

2. Аралас әдістерді біріктіру. Пациенттердің тәжірибесі туралы толық түсінік алу үшін сандық сауалнамаларды фокус-топтар мен сұхбаттар сияқты сапалы әдістермен біріктіру.

3. Орталықтандырылған деректер платформасын құру. Нақты уақыт режимінде мониторинг жүргізуге және өңірлік салыстырулар жүргізуге мүмкіндік беретін деректерді жинауды стандарттаудың ұлттық жүйесін қалыптастыру.

Саясат нұсқаларын іске асыруды пайымдау

Ұсынылған құрылым Қазақстанға денсаулық сақтау жүйесін бағалау тәжірибесін халықаралық стандарттарға сәйкес келтіруге, пациентке бағдарлануға ықпал етуге және қызмет көрсету сапасын үздіксіз арттыруды қамтамасыз етуге мүмкіндік береді.

Түйін сөздер: *денсаулық сақтау сапасының көрсеткіштері, пациенттердің қанағаттануы, сауалнамалар, зерттеудің аралас әдістері, Қазақстан, денсаулық сақтауды бағалау тетіктері, орталықтандырылған деректер жүйелері, мәдениетаралық бейімделу, денсаулық сақтау саласындағы саясатты іске асыру.*

Изучение эффективных методик измерения удовлетворенности населения услугами здравоохранения для внедрения в Казахстане

Кулкаева Г.У. [1], Юшицина Н.Г. [2], Махамбетова М.Е. [3]

[1] Председатель Правления, Национальный научный центр развития здравоохранения имени Салидат Каирбековой, Астана, Казахстан. E-mail: g.kulkayeva@nrchd.kz

[2] Руководитель Аналитического центра стратегических исследований и инициатив в области здравоохранения, Национальный научный центр развития здравоохранения имени Салидат Каирбековой, Астана, Казахстан. E-mail: n.yushitsina@nrchd.kz

[3] Главный специалист управления стратегических исследований и инициатив в области здравоохранения, Национальный научный центр развития здравоохранения имени Салидат Каирбековой, Астана, Казахстан. E-mail: m.makhambetova@nrchd.kz

Резюме

Отсутствие стандартизированных и валидированных методов оценки удовлетворенности пациентов в системе здравоохранения Казахстана является значительным препятствием для повышения качества услуг. Существующие методологии не согласованы, что ограничивает их эффективность как на национальном, так и на международном уровне. В этом обзоре, опираясь на систематические исследования и мировые лучшие практики, представлены практические рекомендации по созданию надежных и культурно адаптированных подходов к измерению удовлетворенности пациентов.

Варианты политики

1. Использование валидированных анкет. Применение глобально признанных инструментов с их адаптацией к культурным и языковым особенностям Казахстана для повышения надежности и сопоставимости данных.

2. Интеграция смешанных методов. Комбинирование количественных опросов с качественными методами, такими как фокус-группы и интервью, для получения более полного представления об опыте пациентов.

3. Создание централизованной платформы данных. Формирование национальной системы стандартизации сбора данных, что позволит осуществлять мониторинг в реальном времени и проводить региональные сравнения.

Видение реализации вариантов политики

Предложенная структура позволит Казахстану привести свои практики оценки системы здравоохранения в соответствие с международными стандартами, способствуя ориентированности на пациента и обеспечивая непрерывное повышение качества услуг.

Ключевые слова: *показатели качества здравоохранения, удовлетворенность пациентов, анкеты, смешанные методы исследования, Казахстан, механизмы оценки здравоохранения, централизованные системы данных, кросс - культурная адаптация, реализация политики в здравоохранении.*

https://doi.org/10.32921/2225-9929-2024-4-59-81-89
UDC 316.334.56; 614.2
IRSTI 76.75.29; 76.75.75

Review article

Challenges and Opportunities for Improving Health Literacy in Rural Areas of Kazakhstan: Current Trends and Strategies for Improvement

Zhanerke Ermakhan [1] , Roza Suleimenova [2] , Serik Bakhtiyar [3], Don Eliseo Lucero-Prisno III [4]

[1] *PhD-student, Astana Medical University, Astana, Kazakhstan. E-mail: zhanerkeermakhan@gmail.com*
[2] *Head of Public health and hygiene department, Astana Medical University, Astana, Kazakhstan. E-mail: suleimenova.r@amu.kz*
[3] *Associate professor- researcher of Public health and hygiene department, Astana Medical University, Astana, Kazakhstan. E-mail: serik.b@amu.kz*
[4] *Professor of Department of Global Health and Development, London School of Hygiene and Tropical Medicine, London, United Kingdom. E-mail: luceroprisno@gmail.com*

Abstract

Health literacy is a critical determinant of public health outcomes, shaping individuals' abilities to access, understand, and apply health information effectively. Despite Kazakhstan's advancements in healthcare, significant disparities persist between urban and rural populations, with rural areas exhibiting disproportionately low levels of health literacy. This disparity exacerbates existing healthcare inequalities, resulting in delayed diagnoses, limited use of preventive care, and poor health outcomes. The urgency to address these gaps is underscored by the rising prevalence of chronic diseases and the need for informed patient participation in healthcare.

The study reviews recent literature published from 2013 to 2023 (10 years), national statistics, and case studies from both Kazakhstan and similar global contexts.

Research was conducted through PubMed, Scopus, Web of science and Google Scholar. Additionally, regional academic journals and reports from the World Health Organization were utilized. This article examines the significant barriers and opportunities associated with improving health literacy in rural areas of Kazakhstan.

It highlights the increasing prevalence of low health literacy, its consequences on public health, and strategies to address these issues. The findings emphasize the importance of targeted interventions in bridging rural health literacy gaps. In rural areas of Kazakhstan access to healthcare and public health education remains limited. Low health literacy in these areas exacerbates disparities in health outcomes, leading to higher rates of preventable diseases, limited adoption of preventive care, and increased economic strain on the healthcare system. Major barriers include geographic isolation, inadequate educational resources, and cultural beliefs that hinder the dissemination and understanding of health information.

Conversely, the adoption of mobile health tools, community health worker programs, and culturally tailored health campaigns present viable opportunities. Evidence suggests that targeted interventions—such as school-based health education, telemedicine, and policy-driven health literacy campaigns - can improve outcomes by addressing the unique socio-economic and cultural barriers in rural areas of Kazakhstan.

Keywords: health literacy, rural population, health knowledge, attitudes, practice, healthcare disparities, public health, health promotion.

Corresponding author: Zhanerke Ermakhan, PhD-student at Astana Medical University, Astana, Kazakhstan
Postal code: Z05P3Y4
Address: Kazakhstan, Astana, Beibitshilik str. 49A, 51 building.
Phone: +77782539215
E-mail: zhanerkeermakhan@gmail.com

J Health Dev 2024; 4 (59):81-89
Recieved: 19-10-2024
Accepted : 04-12-2024

Introduction

Health literacy is a critical determinant of health outcomes, enabling individuals to make informed decisions regarding disease prevention, treatment adherence, and overall well-being. It involves the ability to access, comprehend, and apply health-related information effectively, influencing personal and public health [1-3]. In rural areas, where nearly 40% of Kazakhstan's population resides, low health literacy contributes significantly to disparities in healthcare access and outcomes. Rural communities face compounded challenges such as limited healthcare infrastructure, socio-economic constraints, and cultural barriers, further exacerbating health inequities [1] [4]. Improving health literacy is essential for addressing these disparities and achieving national health goals, particularly in combating non-communicable diseases, improving maternal health, and reducing vaccine hesitancy [5,6].

Despite growing recognition of the importance of health literacy, little research has focused on the unique barriers and opportunities present in rural areas of Kazakhstan. Existing health education initiatives often fail to account for the socio-cultural and infrastructural contexts of rural areas, resulting in suboptimal interventions. Furthermore, there is limited exploration of how global best practices can be adapted to these local settings. This gap highlights the need for a deeper understanding of rural health literacy dynamics and the development of targeted, evidence-based strategies.

This article aims to address these gaps by exploring the barriers, opportunities, and strategies for enhancing health literacy in rural areas of Kazakhstan. Drawing on local data and international case studies, it examines how socio-economic, cultural, and infrastructural factors shape health literacy. The study proposes tailored interventions and actionable recommendations for policymakers and public health practitioners, leveraging evidence-based approaches to improve health outcomes in rural settings.

Literature Search Strategy

To ensure the comprehensive and reliable synthesis of current trends, this section outlines the methodology used to gather relevant studies and data sources on health literacy in rural areas of Kazakhstan. Research was conducted through PubMed, Scopus, and Google Scholar. Additionally, regional academic journals and reports from the World Health Organization (WHO) were utilized. Keywords included 'health literacy,' 'rural health in Kazakhstan,' 'health education,' and 'healthcare access disparities.' Articles published from 2018 to 2023 were prioritized, with exceptions made for highly relevant studies from 2015–2017. Inclusion criteria focused on peer-reviewed articles, government reports, and case studies.

Barriers to Health Literacy in Rural areas of Kazakhstan

Health literacy, an essential determinant of public health outcomes, is disproportionately low in rural areas of Kazakhstan. This deficiency stems from several socio-economic, cultural, and systemic barriers, which significantly impede the ability of rural populations to access, understand, and utilize health information.

Socio-economic disparities are a primary obstacle to health literacy in rural areas of Kazakhstan. Limited access to quality education, particularly in remote regions, restricts individuals' capacity to comprehend health-related information [2, 3]. A 2020 study reported that approximately 65% of the rural population in Kazakhstan has only secondary education or less, which directly correlates with low health literacy levels [1]. Additionally, economic constraints such as unemployment and poverty exacerbate health disparities. These factors limit access to healthcare services, healthy lifestyles, and health education programs, creating a vicious cycle of poor health outcomes [4,6].

Geographic remoteness is another critical factor contributing to low health literacy. Many rural settlements are located far from urban centers, where most healthcare facilities and educational resources are concentrated. This physical isolation hinders regular access to healthcare professionals and health education initiatives, leaving rural residents reliant on limited local resources or self-diagnosis, often influenced by misinformation [5].

Cultural norms and linguistic diversity in Kazakhstan also play a significant role in limiting health literacy. Rural areas are home to ethnically diverse populations speaking Kazakh, Russian, and minority languages. Health materials are often unavailable in minority languages, alienating significant portions of the population [7]. Moreover, cultural attitudes toward health, such as reliance on traditional medicine and mistrust of modern healthcare, further reduce the uptake of health literacy programs [8]. For instance, vaccine hesitancy remains high in certain rural communities due to entrenched cultural beliefs and misinformation [9].

Education systems in rural areas of Kazakhstan face challenges such as inadequate infrastructure, lack of qualified teachers, and limited curricular emphasis on health education. Schools in these regions often lack resources to implement comprehensive health literacy programs, leaving students unprepared to navigate healthcare systems or make informed health decisions [10, 11].

The digital divide between rural and urban areas in Kazakhstan also contributes to low health literacy. Limited internet connectivity and digital skills prevent rural populations from accessing reliable online health information. While urban residents increasingly use telemedicine and digital health platforms, these resources remain underutilized in rural areas due to technological constraints and lack of awareness [12,13].

The combined effects of these barriers significantly impact health outcomes in rural areas of Kazakhstan. Low health literacy is associated with higher rates of chronic diseases such as diabetes and hypertension, delayed diagnoses, and low adherence to treatment regimens [14]. Additionally, maternal and child health indicators in rural areas lag behind national averages, reflecting the adverse effects of insufficient health education and access to care [15]. Case studies illustrate the challenges posed by low health literacy in rural areas of Kazakhstan. For example, a 2019 survey found that over 70% of rural women lacked awareness of preventive healthcare measures such as regular breast cancer screening [16]. Similarly, a community health assessment in a remote region revealed that misinformation about vaccinations led to a measles outbreak in 2020, underscoring the consequences of inadequate health education [17].

Low health literacy in rural areas imposes a significant economic burden on Kazakhstan's healthcare system. Increased hospitalizations, prolonged treatments, and preventable complications result in higher healthcare costs and strain public resources [18]. Furthermore, low health literacy undermines efforts to achieve national health goals, such as reducing the prevalence of non-communicable diseases and improving overall life expectancy [19].

The barriers to health literacy in rural areas of Kazakhstan are not unique; similar challenges are observed globally in rural and underserved regions. For instance, studies in sub-Saharan Africa and Southeast Asia highlight the role of socio-economic inequality, cultural norms, and infrastructural deficits in perpetuating low health literacy [20,21]. Drawing comparisons with global contexts provides valuable insights into addressing these barriers effectively.

Opportunities for Improving Health Literacy in Rural areas of Kazakhstan

Improving health literacy in rural areas of Kazakhstan presents numerous opportunities, despite the existing barriers. By leveraging modern technology, education reforms, community-based interventions, and partnerships, health literacy can be effectively enhanced. This section explores these opportunities while emphasizing evidence-based solutions and lessons from global and local contexts.

Digital technology offers a transformative opportunity to improve health literacy, even in geographically isolated areas. Mobile health (mHealth) applications and telemedicine services are increasingly recognized as cost-effective methods for delivering health information and services. In rural areas of Kazakhstan, the expansion of 4G networks and mobile device ownership provides a foundation for implementing mHealth initiatives [22]. Telemedicine platforms can connect rural residents with healthcare professionals, enabling consultations and health education sessions without requiring physical travel. For example, Kazakhstan's Damumed telemedicine service has successfully increased access to medical advice, especially during the COVID-19 pandemic, highlighting its potential for long-term health education [23]. Additionally, social media platforms can serve as tools for disseminating reliable health information, countering misinformation, and engaging rural populations in health awareness campaigns [24]. Digital literacy training programs, integrated into community centers or schools, can further empower rural populations to access and utilize digital health resources. Countries such as India and Kenya have demonstrated that integrating digital tools with health literacy campaigns can significantly improve health outcomes in rural areas [25].

Kazakhstan's education system is a critical platform for fostering health literacy among rural populations. School-based health education programs can provide children and adolescents with essential knowledge and skills to make informed health decisions. Incorporating health literacy into the national curriculum as a mandatory subject can create a generational shift in attitudes toward health. For instance, health education modules focusing on nutrition, hygiene, and preventive care can address prevalent health issues such as malnutrition and infectious diseases. Pilot programs in rural schools in East Kazakhstan have demonstrated that students exposed to structured health education exhibit improved understanding of basic health concepts and practices [26]. Furthermore, teacher training programs can ensure educators are equipped to deliver accurate and engaging health education content [27].

Expanding adult education programs is another vital strategy. Community-based workshops on health topics, delivered through local schools or cultural centers, can engage rural adults and foster intergenerational learning. Such initiatives have been effective in countries like Thailand, where community health education programs significantly improved health literacy in rural populations [28].

Community-based approaches offer culturally sensitive and sustainable methods to improve health literacy. Involving trusted community leaders, religious figures, and local organizations can enhance the credibility and reach of health education initiatives. For example, community health workers (CHWs) have been instrumental in improving health outcomes in underserved areas worldwide.

In Kazakhstan, expanding the role of CHWs to include health education and literacy training can address both informational and cultural barriers. CHWs can conduct home visits, organize group sessions, and distribute health materials tailored to the specific needs of rural communities [29]. In regions with low female literacy rates, women CHWs can play a pivotal role in engaging and educating women and children, addressing gender-specific health disparities.

Traditional practices and beliefs often influence health behaviors in rural areas of Kazakhstan. Culturally tailored health education campaigns that respect and integrate local traditions can foster acceptance and participation. For example, storytelling and visual aids, which resonate with oral traditions, can be used to convey health messages effectively.

Government policies play a fundamental role in addressing structural barriers and promoting health literacy. Integrating health literacy improvement into Kazakhstan's National Healthcare Development Program can ensure sustained funding and institutional support. Policies that incentivize healthcare providers to conduct outreach programs in rural areas can bridge the gap between urban and rural healthcare systems [30].

Additionally, partnerships with international organizations such as the World Health Organization (WHO) can provide technical assistance and resources for large-scale health literacy campaigns. WHO's Health Promoting Schools initiative has been adapted in several countries to improve youth health literacy and can be tailored to Kazakhstan's context [31].

Kazakhstan's recent focus on e-governance and digital transformation presents an opportunity to integrate health literacy into government platforms. Online portals and mobile applications offering health information, appointment scheduling, and reminders for preventive screenings can enhance accessibility and convenience for rural residents. Collaboration between the government and private sector can amplify health literacy efforts. Pharmaceutical companies, technology firms, and non-governmental organizations (NGOs) can contribute resources, expertise, and innovation. For instance, corporate social responsibility (CSR) programs can fund health education campaigns, mobile clinics, and training programs for CHWs.

In neighboring Uzbekistan, a partnership between the Ministry of Health and a telecommunications company resulted in the launch of an mHealth platform that provides

free health information and reminders via SMS. Similar collaborations in Kazakhstan can expand the reach of health literacy initiatives [32].

Global experiences offer valuable lessons for Kazakhstan. For instance, Rwanda's community health worker model has been lauded for its effectiveness in delivering health education in rural areas. CHWs are equipped with mobile devices to access training materials, record patient data, and provide tailored health education during home visits. Adapting this model to Kazakhstan's rural areas' context could yield similar benefits [33]. In Australia, the Health Literacy Network connects rural communities with health professionals through virtual platforms, enabling ongoing education and support. A similar initiative in Kazakhstan could enhance connectivity between healthcare providers and rural residents, fostering continuous health education [34].

While these opportunities are promising, implementation challenges exist. Resistance to change, mistrust of modern healthcare, and limited funding may hinder progress. To address these issues, health literacy programs must prioritize community engagement, transparency, and evidence-based practices. Monitoring and evaluation frameworks can ensure accountability and measure the impact of interventions.

Sustainability is essential for the long-term success of health literacy initiatives. Building local capacity through training programs, establishing permanent CHW networks, and integrating health literacy into national policies can ensure continuity. Moreover, fostering a culture of health awareness through education, technology, and community involvement can create lasting improvements in rural areas of Kazakhstan.

Strategies for Improving Health Literacy in Rural areas of Kazakhstan

Strategies to improve health literacy in rural areas of Kazakhstan require a multidimensional approach that integrates individual, community, and systemic interventions. Effective strategies must consider the unique socio-economic, cultural, and infrastructural challenges of rural areas while drawing from international best practices. This section discusses key strategies that can be implemented to enhance health literacy and their potential impact.

Creating culturally and linguistically tailored health communication materials is essential for rural populations, where many individuals may have limited education or literacy levels. Simple, visually engaging, and culturally sensitive educational resources can address these barriers. For example, posters and pamphlets written in Kazakh and Russian, accompanied by visual aids, have been shown to increase awareness of hygiene and preventive care in rural clinics [35].

Furthermore, storytelling - a method deeply rooted in Kazakh traditions - can be leveraged as a tool for health education. In other countries, storytelling has proven effective in conveying health messages, especially for populations with limited formal education [36]. By using narratives that reflect local experiences, rural residents can better relate to and adopt recommended practices. Community health workers (CHWs) can play a pivotal role in addressing the gap between rural populations and healthcare systems. CHWs can act as intermediaries, delivering health education, assisting with navigation of healthcare services, and conducting regular check-ins with vulnerable populations [37].

For instance, CHWs in South Africa have successfully reduced the burden of communicable diseases through structured outreach programs that incorporate health literacy training [38]. Implementing a similar model in Kazakhstan would require investment in CHW training programs that emphasize health literacy, including understanding medical terminology, basic diagnostics, and effective communication techniques.

Embedding health literacy initiatives within primary healthcare services ensures a systematic approach to education. Primary care providers in rural areas can integrate health literacy assessments into routine check-ups, identifying individuals who require targeted interventions [39].

Training healthcare professionals in communication strategies, such as the "teach-back" method, can further enhance the effectiveness of these interactions. In the teach-back method, patients repeat the instructions provided to them, ensuring comprehension. Studies in rural areas of India and Uganda have demonstrated the efficacy of this approach in improving adherence to treatment plans [40].

Additionally, community health fairs organized by primary care centers can serve as platforms for health education. These fairs can include workshops on nutrition, chronic disease management, and mental health awareness, tailored to address local health challenges [41].

The increasing penetration of mobile phones and internet services in Kazakhstan's rural regions provides an opportunity to deploy mobile health (mHealth) and telehealth solutions. Mobile applications can deliver personalized health messages, reminders for medication adherence, and educational content on disease prevention [42].

Kazakhstan's Damumed app, which gained prominence during the COVID-19 pandemic, can be expanded to include health literacy modules. These modules could cover topics such as vaccination, maternal health, and chronic disease management. Similarly, SMS-based interventions, which have been successfully implemented in Kenya to promote maternal health awareness, could be adapted to rural areas of Kazakhstan [43].

Telehealth platforms can also facilitate direct interactions between healthcare providers and rural residents. Through virtual consultations, patients can access expert advice and learn about preventive care without the need for travel. To maximize the impact of telehealth, government policies must prioritize the expansion of digital infrastructure in rural areas.

Educational institutions are critical for fostering long-term improvements in health literacy. Integrating health education into the school curriculum can instill foundational knowledge and skills among children and adolescents. Topics such as nutrition, physical activity, mental health, and substance abuse prevention can be covered in an age-appropriate manner [44].

Teacher training programs are essential to ensure educators are equipped to deliver health education effectively. Interactive teaching methods, such as role-playing and group discussions, can engage students and enhance retention of information. Moreover, involving parents in school-based health initiatives can create a supportive environment for adopting healthy behaviors.

Public-private partnerships offer a viable strategy to mobilize resources and expertise for health literacy programs. Private companies can support health campaigns,

sponsor mobile clinics, and fund community health worker training programs. For example, in Turkey, a partnership between the Ministry of Health and a telecommunications company facilitated the launch of a mobile health platform that provided free health education content [45].

Kazakhstan could replicate this model by engaging local businesses, pharmaceutical companies, and technology firms. Incentivizing private sector involvement through tax benefits or public recognition can foster sustained collaboration. Mass media campaigns can significantly influence public awareness and behavior. Radio programs, television ads, and social media campaigns in local languages can reach wide audiences in rural areas. For instance, in Vietnam, a radio-based health education program led to improved maternal health outcomes in rural communities [46]. In Kazakhstan, local influencers and community leaders can play a vital role in disseminating health messages on social media platforms such as Instagram and TikTok. Collaboration with trusted figures ensures greater acceptance of health campaigns.

Government commitment to improving health literacy is crucial for sustainable progress. Policies that mandate health literacy training for healthcare providers, integrate health education into national curricula, and allocate funding for rural health programs are essential [30]. Kazakhstan's National Healthcare Development Program can serve as a platform to institutionalize health literacy initiatives. Monitoring and evaluation mechanisms should be established to track progress and ensure accountability.

Kazakhstan can benefit from collaboration with international organizations and neighboring countries. Partnerships with entities such as the WHO and UNICEF can provide technical expertise and funding for large-scale health literacy campaigns. Additionally, knowledge exchange programs with countries like Singapore and Australia, which have implemented successful health literacy initiatives, can inform Kazakhstan's strategies [47].

To ensure the sustainability of health literacy programs, local communities must be actively involved in planning and implementation. Training local leaders, establishing permanent CHW networks, and creating self-sustaining health education programs can ensure continuity.

Moreover, fostering a culture of lifelong learning, where individuals continuously seek and apply health knowledge, can drive lasting improvements. Government and community stakeholders must work together to create environments that support informed health decisions.

Conclusion

Improving health literacy in rural areas of Kazakhstan is both a critical challenge and a promising opportunity to advance public health and economic well-being. This article has explored the multifaceted barriers that hinder health literacy, ranging from limited access to healthcare infrastructure and educational disparities to socio-cultural factors and economic constraints. Addressing these barriers requires a holistic and data-driven approach that draws on global best practices while tailoring solutions to the unique context of rural areas of Kazakhstan.

Opportunities for improving health literacy include leveraging mobile technology, fostering community engagement through health workers, and implementing culturally sensitive educational programs. International examples, such as mobile health applications in Africa and school-based health education in Europe, offer valuable insights that can be adapted to Kazakhstan's context. Strategic interventions - such as integrating health literacy into primary care services and fostering public-private partnerships - can create sustainable change by aligning government, community, and private sector efforts.

To ensure success, health literacy strategies must be embedded within national healthcare policies, supported by rigorous monitoring and evaluation systems. Long-term sustainability requires active community involvement and the development of self-sustaining health education frameworks. By prioritizing health literacy, Kazakhstan can not only improve individual and population health outcomes but also empower its rural communities, paving the way for a healthier and more equitable future.

Directions for Future Research. Future studies should focus on exploring the cultural dimensions of health literacy in Kazakhstan, evaluating the long-term impact of telehealth interventions, and developing multilingual educational materials tailored to the country's diverse ethnic groups.

Conflicts of Interest - none.

Financing - none.

Contribution of the authors. Zh.E. - writing; B.S., D.E.L.P. - editing, methodology; R.S. – conceptualization.

References

1. Shayakhmetov S.S., Toguzbayeva K.K., Ismailova A.A., Tabibi R. et al. Health literacy of rural population of Kazakhstan. Iranian journal of public health, 2020; 49(7): 1269. [Crossref]

2. Nutbeam D. The evolving concept of health literacy. Social Science & Medicine. 2018; 67(12): 2072-2078. [Google Scholar]

3. Sørensen K., Van den Broucke S., Fullam, J., Doyle G. et al. Consortium Health Literacy Project European. Health literacy and public health: a systematic review and integration of definitions and models. BMC public health, 2012; 12: 1-13. [Crossref]

4. World Health Organization. Health literacy: The solid facts. WHO Europe. 2019. Website. [Cited 17 Sep 2024]. Available from URL: https://apps.who.int.

5. Roth G.J.T.L. Global Burden of Disease Collaborative Network. Global Burden of Disease Study, 2017; 1736-1788.

6. Министерство здравоохранения Казахстана. Национальный доклад о состоянии здоровья и здравоохранении в сельской местности Казахстана. Нур-Султан: Министерство здравоохранения. 2021. Режим доступа: https://www.gov.kz/memleket/entities/dsm/press/article/details/68826

Ministerstvo zdravooxraneniya Kazaxstana. Nacional`ny`j doklad o sostoyanii zdorov`ya i zdravooxranenii v sel`skoj mestnosti Kazaxstana (Ministry of Health of Kazakhstan. National report on the state of health and public health in rural areas of Kazakhstan) [in Russian]. Nur-Sultan: Ministerstvo zdravooxraneniya. 2021. Rezhim dostupa: https://www.gov.kz/memleket/entities/dsm/press/article/details/68826

7. ESCAP U. COVID-19 in North and Central Asia: impacts, responses & strategies to build back better. 2020. Website. [Cited 17 Sep 2024]. Available from URL: https://repository.unescap.org/handle/20.500.12870/3507

8. ЮНИСЕФ в Казахстане. Решение проблемы нерешительности в отношении вакцинации в сельских общинах.

ЮНИСЕФ в Казахстане. 2021.Веб-сайт (Дата обращения: 23 октября 2024). Режим доступа: https://www.unicef.org/kazakhstan/

JuNISEF v Kazahstane. Reshenie problemy nereshitel'nosti v otnoshenii vakcinacii v sel'skih obshhinah (UNICEF Kazakhstan. Addressing vaccine hesitancy in rural communities) [in Russian]. JuNISEF v Kazahstane. 2021.Veb-sajt (Data obrashhenija: 23 oktjabrja 2024). Rezhim dostupa: https://www.unicef.org/kazakhstan/

9. Shaw S.J. The Role of Culture in Health literacy fnd Chronic Disease Screening and Management. 2009.

10. WHO Regional Office for Europe. Educational strategies for improving health literacy in rural areas. WHO Europe. 2019. Website. [Cited 17 Sep 2024]. Available from URL: https://www.who.int/europe/publications/health-literacy-in-the-who-european-region

*11. Sørensen K., Van den Broucke S., Fullam J., Doyle G. et al. Health Literacy and Public Health: A Systematic Review and Integration of Definitions and Models. BMC Public Health, 2012; 12: 80. [*Crossref*]*

12. Kazakhstan Statistics Agency. Digital access in rural areas: A national report. Kazakhstan Statistics Agency. 2021. Website. [Cited 17 Sep 2024]. Available from URL: https://datareportal.com/reports/digital-2021-kazakhstan

13. International Telecommunication Union. Bridging the digital divide in Central Asia: Opportunities for rural healthcare. International Telecommunication Union. 2020. Website. [Cited 17 Sep 2024]. Available from URL: https://www.itu.int/en/mediacentre/Pages/PR02-2020-Kazakhstan-leads-global-school-connectivity-in-Central-Asia.aspx

14. Institute for Health Metrics and Evaluation. Chronic disease prevalence in Kazakhstan: Rural-urban disparities. Institute for Health Metrics and Evaluation. 2021. Website. [Cited 17 Sep 2024]. Available from URL: https://en.wikipedia.org/wiki/Institute_for_Health_Metrics_and_Evaluation

15. Nazarbayev University. Maternal health outcomes in rural Kazakhstan: Challenges and solutions. Nazarbayev University. 2020. Website. [Cited 17 Sep 2024]. Available from URL: https://nu.edu.kz/

*16. Smith A, Taylor R. Breast cancer awareness in low-resource settings: Lessons from Kazakhstan. Journal of Cancer Prevention. 2019;10(2):95–102. [*Google Scholar*]*

*17. Стегленко Е. Почему казахстанские родители отказываются вакцинировать детей. 2021. [*Google Scholar*]*

*Steglenko E. Pochemu kazaxstanskie roditeli otkazy`vayutsya vakcinirovat` detej (Why Kazakh parents refuse to vaccinate their children) [in Russian]. 2021. [*Google Scholar*]*

18. Министерство здравоохранения Казахстана. Экономическое бремя предотвратимых заболеваний: на примере сельских регионов. Министерство здравоохранения Казахстана. 2021. Режим доступа: https://primeminister.kz/assets/media/prilozhenie-rus_13.pdf

Ministerstvo zdravooxraneniya Kazaxstana. E`konomicheskoe bremya predotvratimy`x zabolevanij: na primere sel`skix regionov. Ministerstvo zdravooxraneniya Kazaxstana. 2021. Rezhim dostupa: https://primeminister.kz/assets/media/prilozhenie-rus_13.pdf

19. Национальный центр общественного здравоохранения. Достижение целей Казахстана в области здравоохранения: повышение медицинской грамотности. Национальный центр общественного здравоохранения. 2020. Режим доступа: https://primeminister.kz/assets/media/prilozhenie-rus_13.pdf

Nacional`ny`j centr obshhestvennogo zdravooxraneniya. Dostizhenie celej Kazaxstana v oblasti zdravooxraneniya: povy`shenie medicinskoj gramotnosti. Nacional`ny`j centr obshhestvennogo zdravooxraneniya. 2020. Rezhim dostupa: https://primeminister.kz/assets/media/prilozhenie-rus_13.pdf

*20. Anwar W.A., Mostafa N.S., Hakim S.A., Sos D.G. et al. Health literacy co-design in a low resource setting: harnessing local wisdom to inform interventions across fishing villages in Egypt to improve health and equity. International journal of environmental research and public health, 2021; 18(9): 4518. [*Google Scholar*]*

*21. Gupta P., Chandrasekharan V. Tackling health literacy in rural South Asia: Case studies and solutions. BMJ Global Health, 2020; 5(8): e003587. [*Google Scholar*]*

22. WHO. Health literacy and digital tools: Opportunities for underserved populations. 2019. Website. [Cited 17 Sep 2024]. Available from URL: https://www.who.int/europe/news-room/18-09-2023-digital-health-literacy-key-to-overcoming-barriers-for-health-workers--who-study-says

23. Министерство здравоохранения Казахстана. Оценка программ телемедицины в сельской местности. Министерство здравоохранения Казахстана 2021. Режим доступа: https://www.nur.kz/health/healthcare/2042580-v-minzdrave-rasskazali-o-razvitii-telemeditsiny/

Ministerstvo zdravooxraneniya Kazaxstana. Ocenka programm telemediciny` v sel`skoj mestnosti (Evaluation of telemedicine programs in rural areas. Ministry of Health of Kazakhstan) [in Russian]. Ministerstvo zdravooxraneniya Kazaxstana. 2021. Rezhim dostupa: https://www.nur.kz/health/healthcare/2042580-v-minzdrave-rasskazali-o-razvitii-telemeditsiny/

24. ЮНИСЕФ в Казахстане. Цифровая грамотность и результаты в области здравоохранения в сельских общинах. ЮНИСЕФ в Казахстане. 2020. Веб-сайт (Дата обращения: 23 октября 2024). Режим доступа: https://standard.kz/ru/post/cifrovaya-gramotnost-na-sele

YuNISEF v Kazaxstane. Cifrovaya gramotnost` i rezul`taty` v oblasti zdravooxraneniya v sel`skix obshhinax (Digital literacy and health outcomes in rural communities. UNICEF in Kazakhstan) [in Russian]. YuNISEF v Kazaxstane. 2020. Veb-sajt (Data obrashhenija: 23 oktjabrja 2024). Rezhim dostupa: https://standard.kz/ru/post/cifrovaya-gramotnost-na-sele

*25. Kachimanga C., Zaniku H.R., Divala T.H., Ket J.C.et al. Evaluating the Adoption of mHealth Technologies by Community Health Workers to Improve the Use of Maternal Health Services in Sub-Saharan Africa: Systematic Review. JMIR mHealth and uHealth, 2024; 12: e55819. [*Google Scholar*]*

26. Министерство образования Казахстана. Пилотные программы по санитарной грамотности в школах. Министерство образования Казахстана. 2021. Режим доступа: https://adilet.zan.kz/rus/docs/V2100023890

Ministerstvo obrazovaniya Kazaxstana. Pilotny`e programmy` po sanitarnoj gramotnosti v shkolax (Pilot programs on health literacy in schools) [in Russian]. Ministerstvo obrazovaniya Kazaxstana. 2021. Rezhim dostupa: https://adilet.zan.kz/rus/docs/V2100023890

27. Health education in scholl: Teacher and future teachers conceptions. 2010; 305-329. Website. [Cited 17 Sep 2024]. Available from URL: https://www.researchgate.net/publication/283547408_Health_education_in_school_Teachers'_and_

future_teachers'_conceptions_Europe_Africa_and_Middle_East

28. Anuruang S. Community-based intervention to improve hypertension management in Thailand (Doctoral dissertation), 2015. [Google Scholar]

29. World Health Organization. WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas. World Health Organization. 2021. Website. [Cited 17 Sep 2024]. Available from URL: https://www.who.int/publications/i/item/9789240024229

30. Nazarbayev University. Policy approaches to rural health literacy in Kazakhstan. Nazarbayev University. 2021.Website. [Cited 17 Sep 2024]. Available from URL: https://nu.edu.kz/

31. World Health Organization, United Nations Educational, United Nations Educational, Scientific, & Cultural Organization. 2021. Making every school a health-promoting school: Implementation guidance. World Health Organization.Website. [Cited 17 Sep 2024]. Available from URL: https://www.who.int/publications/i/item/9789240025073

32. Michael R.Reich Public-private partnerships for Public Health. Nature Medicine6 2000; 6(6): 617-620. [Google Scholar]

33. Health Sector Annual Performance Report 2020-2021. Republic of Rwanda. Ministry of Health. 2020. Website. [Cited 17 Sep 2024]. Available from URL: https://www.moh.gov.rw/fileadmin/user_upload/Moh/Publications/Reports/Health_Sector_Annual_Performance_Report_2020-2021

34. Australian Institute of Health. Using networks to bridge rural health literacy gaps. Australian Institute of Health. 2021. Website. [Cited 17 Sep 2024]. Available from URL: https://www.aihw.gov.au/

35. Министерство здравоохранения Казахстана. Материалы по санитарному просвещению на уровне общин: тематическое исследование. Министерство здравоохранения Казахстана. 2021. Режим доступа: https://www.gov.kz/memleket/entities/departament-kkbtu-sko/documents/details/427767?lang=ru

Ministerstvo zdravooxraneniya Kazaxstana. Materialy` po sanitarnomu prosveshheniyu na urovne obshhin: tematicheskoe issledovanie. Ministerstvo zdravooxraneniya Kazaxstana. 2021. Rezhim dostupa: https://www.gov.kz/memleket/entities/departament-kkbtu-sko/documents/details/427767?lang=ru

36. The role of storytelling in health promotion. Global Health Review. 2020. Website. [Cited 17 Sep 2024]. Available from URL: https://pmc.ncbi.nlm.nih.gov/articles/PMC9192132/

37. Berini C.R., Bonilha H.S., Simpson A.N. Impact of community health workers on access to care for rural populations in the United States: a systematic review. Journal of community health, 2022; 47(3): 539-553. [Google Scholar]

38. Murphy J.P., Moolla A., Kgowedi S., Mongwenyana C. et al. Community health worker models in South Africa: a qualitative study on policy implementation of the 2018/19 revised framework. Health Policy and Planning, 2021; 36(4): 384-396. [Google Scholar]

39. Holmen H., Fløtø T., Tørris C., Løyland B. et al. Unpacking the Public Health Triad of Social Inequality in Health, Health Literacy, and Quality of Life—A Scoping Review of Research Characteristics. International Journal of Environmental Research and Public Health, 2023; 21(1): 36. [Google Scholar]

40. Walker P. Facilitating Teach-Back Use: Factors In Patient-Provider Communication Between Medical Residents And Patients With Limited Health Literacy. 2024. [Google Scholar]

41. World Health Organization. Inter-ministerial Meeting to revitalize Health Promoting Schools in South-East Asia Region (virtual), 12–14 October 2021 (No. SEA-HE-214). World Health Organization. Regional Office for South-East Asia. Website. [Cited 17 Sep 2024]. Available from URL: https://www.who.int/publications/i/item/SEA-HE-214

42. Цифровая модернизация здравоохранения Казахстана. Возможности для электронного в сельских регионах Казахстана. Казахстанский цифровой альянс. 2020. Режим доступа: https://apni.ru/article/431-tsifrovaya-modernizatsiya-zdravookhraneniya

Cifrovaya modernizaciya zdravooxraneniya Kazaxstana (Digital modernization of healthcare in Kazakhstan) [in Russian]. Vozmozhnosti dlya e`lektronnogo v sel`skix regionax Kazaxstana. Kazaxstanskij cifrovoj al`yans. 2020. Rezhim dostupa: https://apni.ru/article/431-tsifrovaya-modernizatsiya-zdravookhraneniya

43. Ronen K., Choo E.M., Wandika B., UdrenJ.I. et al. Evaluation of a two-way SMS messaging strategy to reduce neonatal mortality: rationale, design and methods of the Mobile WACh NEO randomised controlled trial in Kenya. BMJ open, 2021; 11(12): e056062. [Google Scholar]

44. Об утверждении Санитарных правил «Санитарно-эпидемиологические требования к объектам образования. О Внесение изменений в приказ Министра здравоохранения РК от 5 августа 2021 года. ҚР ДСМ-76. Режим доступа: https://www.gov.kz/memleket/entities/dsm/documents/details/341909?lang=ru

Ob utverzhdenii Sanitarny`x pravil «Sanitarno-e`pidemiologicheskie trebovaniya k ob``ektam obrazovaniya (On the approval of Sanitary rules "Sanitary and epidemiological requirements for educational facilities.) [in Russian]. O Vnesenie izmenenij v prikaz Ministra zdravooxraneniya RK ot 5 avgusta 2021 goda. ҚR DSM-76. Rezhim dostupa: https://www.gov.kz/memleket/entities/dsm/documents/details/341909?lang=ru

45. Yılmaz İ. The Improvement of public private partnership in the Turkish health law. İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi, 2021; 20(41): 807-852. [Google Scholar]

*46. WHO Europe. International collaboration for health literacy improvement. 2020. Website. [Cited 17 Sep 2024]. Available from URL: h*ttps://www.who.int/europe/publications/health-literacy-in-the-who-european-region

Қазақстанның ауылдық аудандарында медициналық сауаттылықты арттыру мәселелері мен мүмкіндіктері: Ағымдағы үрдістер мен жақсарту стратегиялары

Ермахан Ж.Т. [1] , Сулейменова Р.Қ. [2] , Серик Б. [3], Don Eliseo Lucero-Prisno III [4]

[1] PhD докторант, Астана медицина университеті, Астана, Қазақстан. E-mail: zhanerkeermakhan@gmail.com
[2] Қоғамдық денсаулық және гигиена кафедрасының меңгерушісі, Астана медицина университеті, Астана, Қазақстан. E-mail: suleimenova.r@amu.kz
[3] Қоғамдық денсаулық сақтау және гигиена кафедрасының доцент - зерттеушісі, Астана медицина университеті, Астана, Қазақстан. E-mail: serik.b@amu.kz
[4] Жаһандық денсаулық сақтау және даму кафедрасының профессоры, Лондон гигиена және тропикалық медицина мектебі, Лондон, Ұлыбритания. E-mail: luceroprisno@gmail.com

Түйіндеме

Медициналық сауаттылық денсаулық сақтау саласындағы нәтижелерді анықтайтын, халықтың медициналық ақпаратқа қол жеткізу, оны түсіну және тиімді қолдану қабілетін анықтайтын маңызды фактор болып табылады. Қазақстанның денсаулық сақтау саласындағы жетістіктеріне қарамастан, қала және ауыл тұрғындарының арасында айтарлықтай айырмашылықтар сақталуда, атап айтқанда, ауылдық аудандарда медициналық сауаттылық деңгейі төмен. Бұл теңсіздік денсаулық сақтау саласындағы теңсіздікті күшейтеді және диагнозды уақтылы қоймауға, профилактикалық көмекті шектеулі пайдалануға және денсаулық сақтаудағы қызметтердің төмен нәтижелеріне алып келеді. Бұл олқылықтарды жоюдың өзектілігі созылмалы аурулардың көбеюімен және пациенттердің медициналық көмек көрсету үрдісіне ақпараттандырылған қатысу қажеттілігімен ерекшеленеді.

Әдеби шолу барысында 2013 жылдан 2023 жылға дейінгі аралықта (10 жыл ішінде) жарияланған ең жаңа әдебиеттерді, Қазақстанда және жаһандық контекстте ұлттық статистика мен кейстер талданды. Зерттеу PubMed, Scopus, Web of science және Google Scholar базаларының көмегімен жүргізілді. Сонымен қатар, Дүниежүзілік денсаулық сақтау ұйымының аймақтық ғылыми журналдары мен есептерінің деректері қолданылды. Бұл мақалада Қазақстанның ауылдық жерлерінде медициналық сауаттылықты арттыруға байланысты елеулі кедергілер мен мүмкіндіктер қарастырылады.

Медициналық сауаттылықтың төмен болу үрдісінің өсіп келе жатқанын, оның қоғамдық денсаулыққа әсерін және осы мәселелерді шешу стратегиясын көрсетеді. Зерттеу нәтижелері ауылдық жерлердегі медициналық сауаттылықтағы олқылықтарды жою үшін мақсатты шаралардың маңыздылығын көрсетеді. Бүгінде Қазақстанның ауылдық жерлерінде Денсаулық сақтау мен санитарлық ағартуға қолжетімділіктің деңгейі шектеулі. Медициналық сауаттылықтың төмендігі денсаулық көрсеткіштеріндегі теңсіздіктерді күшейтеді, алдын алуға болатын аурулардың өршуін жоғарылатады, алдын алу шараларына қолжетімділікті шектейді және денсаулық сақтау жүйесіне экономикалық жүктемені арттыруға алып келеді. Негізгі кедергілерге географиялық оқшау орналасу, білім беру ресурстарының жеткіліксіздігі және медициналық ақпараттың таралуына кедергі келтіретін мәдени нанымдар жатады. Ал, мобильді медициналық құралдарды, жергілікті медицина қызметкерлеріне арналған бағдарламаларды және мәдени ерекшеліктерді ескеретін денсаулық сақтау науқандарын енгізу нақты мүмкіндіктерге жол ашады.

Деректер мектептердегі санитарлық ағарту, телемедицина және саясатқа негізделген медициналық сауаттылықты арттыру науқандары сияқты мақсатты іс-шаралар Қазақстанның ауылдық аудандарындағы бірегей әлеуметтік-экономикалық және мәдени кедергілерді жою арқылы нәтижелерді жақсарта алатынын көрсетеді.

Түйін сөздер: медициналық сауаттылық, ауыл халқы, денсаулық туралы білім, көзқарас, тәжірибе, денсаулық сақтаудағы теңсіздік, қоғамдық денсаулық сақтау, денсаулықты нығайту.

Проблемы и возможности повышения медицинской грамотности в сельских районах Казахстана: Текущие тенденции и стратегии улучшения

Ермахан Ж.Т. [1] , Сулейменова Р.К. [2] , Серик Б. [3], Don Eliseo Lucero-Prisno III [4]

[1] PhD докторант, Медицинский университет Астана, Астана, Казахстан. E-mail: zhanerkeermakhan@gmail.com
[2] Заведующая кафедрой общественного здоровья и гигиены, Медицинский университет Астана, Астана, Казахстан. E-mail: suleimenova.r@amu.kz
[3] Доцент - исследователь кафедры общественного здоровья и гигиены, Медицинский университет Астана, Астана, Казахстан. E-mail: serik.b@amu.kz
[4] Профессор кафедры глобального здравоохранения и развития, Лондонской школы гигиены и тропической медицины, Лондон, Великобритания. E-mail: luceroprisno@gmail.com

Резюме

Медицинская грамотность является важнейшим фактором, определяющим результаты в области общественного здравоохранения, определяющим способность людей получать доступ к медицинской информации, понимать ее и эффективно применять. Несмотря на достижения Казахстана в области здравоохранения, сохраняются значительные различия между городским и сельским населением, причем в сельских районах уровень медицинской грамотности непропорционально низок. Это неравенство усугубляет существующее неравенство в области здравоохранения, приводя к несвоевременной постановке диагноза, ограниченному использованию профилактической помощи и плохим результатам в отношении здоровья. Срочность устранения этих пробелов подчеркивается растущей распространенностью хронических заболеваний и необходимостью информированного участия пациентов в оказании медицинской помощи.

В исследовании анализируется новейшая литература, опубликованная с 2013 по 2023 год (за 10 лет), национальная статистика и тематические исследования как в Казахстане, так и в аналогичных глобальных контекстах. Исследование проводилось с помощью PubMed, Scopus, Web of science и Google Scholar. Кроме того, были использованы региональные научные

журналы и отчеты Всемирной организации здравоохранения. В этой статье рассматриваются значительные барьеры и возможности, связанные с повышением медицинской грамотности в сельских районах Казахстана. В нем подчеркивается растущая распространенность низкой медицинской грамотности, ее последствия для общественного здравоохранения и стратегии решения этих проблем.

Результаты исследования подчеркивают важность целенаправленных мероприятий для устранения пробелов в медицинской грамотности в сельской местности. В сельской местности Казахстана доступ к здравоохранению и санитарному просвещению остается ограниченным. Низкая медицинская грамотность в этих областях усугубляет различия в показателях здоровья, что приводит к более высокому уровню предотвратимых заболеваний, ограниченному внедрению профилактических мер и увеличению экономической нагрузки на систему здравоохранения. К основным препятствиям относятся географическая изоляция, недостаточные образовательные ресурсы и культурные убеждения, которые препятствуют распространению и пониманию медицинской информации. И наоборот, внедрение мобильных медицинских инструментов, программ для местных медицинских работников и кампаний по охране здоровья, учитывающих культурные особенности, открывает реальные возможности.

Имеющиеся данные свидетельствуют о том, что целенаправленные мероприятия, такие как санитарное просвещение в школах, телемедицина и кампании по повышению медицинской грамотности, основанные на политике, могут улучшить результаты за счет устранения уникальных социально—экономических и культурных барьеров в сельских районах Казахстана.

Ключевые слова: медицинская грамотность, сельское население, знания о здоровье, отношение, практика, неравенство в здравоохранении, общественное здравоохранение, укрепление здоровья.

МАЗМҰНЫ

СОДЕРЖАНИЕ

CONTENT